ATTACHMENT 1

RESPONSE TO PUBLIC COMMENTS

INTRODUCTION

Six persons filled out appearance slips at the August 17, 2004 public hearing, and two persons made comments. Five persons filled out appearance slips at the August 18, 2004 public hearing, and 4 persons made comments. Verbal comments and notations on the hearing appearance slips were either general statements of support or opposition or were also covered in written comments submitted by the presenters. The Department received 17 sets of written comments during the public comment period for the draft rule revisions, and formatting comments from the Legislative Council Rules Clearinghouse.

The written comments were sorted into major topics as indicated below. Some comments have been edited or paraphrased for the sake of brevity or clarity. In no case have we attempted to alter the substance of a comment.

A. GENERAL COMMENTS - Issues not specific to code details
B. SPECIFIC CODE CITATIONS - Technical issues associated with collection line cleanout length changes
C. SPECIFIC CODE CITATIONS - Leachate recirculation
D. SPECIFIC CODE CITATIONS - Landfill organics stabilization plans
E. SPECIFIC CODE CITATIONS - Implementing requirements for RCRA Sub. D RD&D permit
F. APPLICABILITY
G. LEGISLATIVE COUNCIL RULES CLEARINGHOUSE COMMENTS
H. LIST OF COMMENTERS AND ABBREVIATIONS

Comments and Department responses are presented below. The identities of persons or organizations submitting comments are listed as abbreviations following each comment. See the list at the end for full names of commenters.

A. GENERAL COMMENTS - Issues not specific to code details

WEPA Process

1. Comment summary - The Wisconsin Environmental Policy Act, Wis. Sta. 1.11 (WEPA), requires major state actions significantly affecting the quality of the human environment to be evaluated in an environmental impact statement (EIS). However, the green sheet in this docket indicates that the only environmental analysis and review done on this rule was a determination that such consideration under WEPA was "N/A", (presumably non-applicable).

The proposed rule is a Type I action, requiring preparation of a full EIS under WEPA. In the alternative, at the very least, a hard look is required as a Type II action under Wis. Admin. Code NR 150.03(b)3.

The commenters' position is that an EIS must be prepared before the Natural Resources Board can proceed to consider this rule. At a minimum, an environmental assessment must be prepared by the Department. The commenters also commented that the rule changes would lead to larger landfills, increased leachate line failures due to greater overburden weight and result in landfill waste slides that would put future neighbors at risk. (SCJMC, G&S)

Response: The method whereby the Department complies with WEPA is set out in administrative rule, ch. NR 150, Wis. Adm. Code. We believe section NR 150.03(6)(b)3.b., Wis. Adm. Code sets out the appropriate WEPA review for promulgation of this rule. We determined that this code promulgation is a Type III action that does not require an Environmental Assessment or an Environmental Impact Statement because we believe the rule "will not have material impacts on the human environment."

When the NR 500 green sheet package was being developed, the Bureau of Waste Management consulted with the Environmental Analysis and Liaison staff in the Bureau of Integrated Science Services regarding the appropriate WEPA process for this rule making effort. Based on those discussions and history of previous, similar rulemaking in the waste management program, staff concluded that the proposed rules would not have a material impact on the human environment within the context of the NR 150 action type list and that consequently, an environmental assessment was not needed.

This interpretation of the NR 150 requirements is consistent with the approach taken for the last significant rewrite of the NR 500 rule series in 1996 to incorporate State and Federal standards.

Based on the comments received during the public comment period, it appears commenters had significant concern and/or misunderstanding about the process of developing the proposed revisions to NR 500, questions on the primary and secondary impacts, and the potential environmental and societal risks/impacts posed by this rule. In order to address these issues, the program will provide additional analysis to the NRB in the green sheet package, including the following:

- Specific information on development and decision processes.
- Potential primary and secondary impacts (positive and negative).
- Environmental and societal risks/benefits.

<u>General Support for Rule / Portions of Rule</u>

2. Comment: We support this proposal and support the extension of this policy to high-volume industrial waste landfills. The general policy change is based on experience with modern landfill designs and should be protective of the environment. This change offers flexibility and potential cost savings for landfill operators. (WPC)

3. Comment: This rulemaking is among the most important in decades, and the department is to be commended for advancing rather than awaiting change. We offer these comments with every confidence that the final rule will safeguard Wisconsin's environment while creating economic and operating efficiencies in waste disposal practices. (WMI)

4. Comment: Concepts such as extended leachate collection lines, leachate recirculation, waste stabilization and research promise significant environmental and economic benefit. We strongly feel that the overall goals of this rulemaking effort are well aligned with the environmental goals that govern our Company. (WMI)

5. Comment: The proposed changes regarding longer leachate collection lines and leachate re-circulation for faster stabilization of landfills are needed and seem to be appropriate for those landfills that choose to implement them. (Marathon Co.)

6. Comment: Looking to the future by examining new and emerging technologies that may more effectively and expeditiously stabilize landfill waste is admirable and critically important to Wisconsin's environment. (Portage Co.)

Response: No response is needed or required for the previous 5 comments.

General Opposition to Rule / Portions of Rule

7. Comment: We have had a very good NR 500 to 520 Solid Waste Code for several years, and we should work to be sure the new version is even better. When the State is ready to modify the set of rules, the new ones must be written clearly, have sound technical basis, and be applied appropriately and fairly. Unfortunately, the proposed changes (August 2004 version) are not in that condition. Please do not adopt what is being considered; the proposed 23-page version significantly complicates the existing rules and increases costs without benefiting the landfills I am familiar with. These proposed rules benefit only the very large MSW sites, and result in more cost and more challenges for the county-owned and industrial landfills. (BH)

Response: We have modified a number of aspects of the proposed rules to improve clarity. The proposed rule includes a number of design enhancements. Many of these would apply to all landfills and are based on best practices within the industry or offer improvements that experience has shown are needed to protect public health and the environment. Additional requirements would apply only to landfills with longer (>1200 foot) leachate lines or those practicing leachate recirculation. These requirements would not apply to all landfills.

8. Comment: Allowing longer leachate lines and larger landfills will only benefit the landfills financially, as well as the village governments who will also reap financial benefits. All the rest of us are left with the frightening thought of what is brewing beneath the surface of these hills of garbage. As a hairdresser, I have contact with many people who upon my questioning, have admitted that they routinely dispose of items that should never be put in the landfill, and most people are not educated about zero waste. By allowing larger landfills, we are only encouraging the continuation of these behaviors. We strongly oppose the changes, and hope that the DNR will consider our comments when deciding on this issue. (Witt)

Response: While this proposed rule would allow longer leachate lines for some landfills, it would also require numerous design improvements for those landfills, other design enhancements for all landfills, and would require landfills to prepare a stability plan intended to reduce the long-term risks of the landfill. The proposed design enhancements will also improve the protectiveness of landfills against the effects of household hazardous wastes that find their way into landfills in small quantities.

9. Comment: Living in the vicinity of two major landfills (Emerald Park and Metro), I have serious concerns about these changes, especially NR 504. I've always believed that the DNR, and all of our citizens are charged with the responsibility to leave a better world for future generations. I certainly don't think these revisions provide for that. Will the DNR guarantee that fewer landfills will happen, that lines won't clog more readily and that ground water won't be affected by these measures? (Campbell)

Response: The rule contains numerous design improvements for all landfills and an important stability plan requirement. The design changes will increase groundwater protection through more efficient leachate collection, and the stability plan is expected to further reduce the long-term risks of the landfill. The number of landfills is driven in part by the amount of waste that is generated as well as the size of the landfills that are established and many other factors. The Department believes that larger

individual landfill capacities could promote a reduction in the number of new landfills that have to be sited. Wisconsin Statutes also contain a required "needs" analysis that prevents the Department from approving proposed landfills that are not needed for disposal of wastes that are likely to be generated. The Department has seen no evidence to suggest that longer leachate lines will clog more readily so long as they are properly designed and maintained, in accordance with the proposed rule.

10. Comment: We ask the DNR not to alter or modify the 1200-foot rule. (WEAL)

Response: We believe the benefits of the proposed rules outweigh the negatives and plan to move forward with the rules.

11. Comment: What is the justification for these changes - environmental benefit or profitability for mega landfills? (Marathon Co.)

Response: A major change in the rules is the increase in the allowable length of leachate collection lines. When the present limitation was imposed in 1996, the Department committed to revisiting the issue once further technical information was available. In addition, industry advances (e.g., the widespread adoption of leachate recirculation) have created the need to address design, construction and operational standards for landfills. The proposed rule changes are expected to improve landfill design and operation in Wisconsin, and the stability plan requirement should help reduce the long-term risks of landfills.

Process Used to Develop Proposed Rule

12. Comment: The makeup of the Technical Advisory Committee used for development of the rule doesn't appear to have been balanced - only one representative for publicly owned landfills. Appearances are such that large, corporate waste disposal companies and large, corporate engineering firms forwarded the recommendations used for the proposed rule changes. (Portage Co.)

Response: The Department followed the same process that we normally follow in rulemaking, with the exception of incorporating our EMS principles, and that is to involve numerous stakeholders. We invited a broad range of stakeholders (including the Wisconsin County Solid Waste Management Association, or WCSWMA)) but not everyone we invited chose to participate. We do recognize that it's difficult for many organizations to participate on advisory committees as much as they would like, and we attempted to anticipate other viewpoints in drafting the proposed rule changes.

13. Comment: Staff initially rejected the request to modify the code and agreed to do so when political pressure was applied. Before completion of technical process to develop conditions that offset additional risks from longer lines, someone from outside the process apparently met with administration, terminating technical process and allowing longer collection lines without the conditions. (G&S)

Response: This comment does not correctly describe the process by which the proposed rule was developed. The Department followed the same, albeit somewhat more lengthy, process that we normally follow, including consultation with stakeholders and staff. As is often the case, not all staff and stakeholders agreed on every point in the proposed rule that emerged from these discussions. The limit on leachate line length was an issue that was scheduled for re-examination, and staff did not initially reject the request. The technical review process was not prematurely terminated, though we did determine that one element of the initially discussed package, involving increased requirements for financial responsibility, could not be completed on the same timeline as the other aspects of the contemplated rulemaking. We hope to continue exploring ways to strengthen the financial responsibility

element of landfill operation in Wisconsin, but did not believe that the proposed rule changes were dependent on financial responsibility changes.

14. Comment: The proposed rules do not fulfill the DNR's own long-term vision of Moving Toward Zero Waste and do not minimize the potential for environmental impacts of landfills, one of DNR's EMS goals. (AROW)

Response: We believe the proposed rules do not conflict with a vision of Zero Waste and, depending on the way the required stability plans are implemented and, in conjunction with the enhanced design, construction and operation requirements, help minimize the impacts from landfills.

15. Comment: The proposed rules do not do not represent a consensus of the Technical Advisory Committee established in late 2002 to re-evaluate the 1,200 ft limit on leachate collection lines. (SCJMC, G&S)

Response: TACs rarely come to total consensus. In this case, the proposed rule changes represent the overall tenor of the advice from the TAC. In addition, we note that some aspects of the proposed rule (e.g., the concept of stability plans) began as minority viewpoints and also did not result from complete consensus on the TAC.

Risk Associated With Larger Landfills

16. Comment: Longer collection lines are likely to experience more failures, which, due to greater landfill size and overburden, are more costly and difficult to repair. Also, inasmuch as longer leachate lines enable landfills to be built substantially higher, accessing those lines to repair inevitable blockages will be more difficult and costly, and experience shows that higher repair costs can influence whether the necessary repairs get done at all. (G&S - attachment)

Response: We believe the specific design, construction and operation enhancements proposed in the rules for landfills with longer leachate lines will make it less likely than at present that collection line blockages and failures will occur. Also, the stability plan requirement is intended to reduce the potential long-term consequences of leachate collection system problems to the environment.

If a leachate line plugs (regardless of the length), design redundancies are intended to ensure continued system operation. Instances of plugging are reviewed on a case-by-case basis and corrective measures are required to assure the leachate system as a whole is operating and leachate levels don't build up in the landfill.

17. Comment: The very fact of permitting a new generation of mega-fills near urban areas on top of existing sites raises a whole separate set of major concerns. That is the clear possibility of catastrophic landslides, sometimes called garbalanches, with tens of millions of tons of trash crashing down on surrounding homes, stores and offices without warning. (G&S - attachment)

Response: The example that is typically referenced when this subject is mentioned occurred at a facility designed and operated in a fashion that would be unacceptable under the rules in WI. Our existing design code doesn't allow slopes greater than 4 (horizontal) to 1 (vertical), and the proposed code enhancements promote physical stability and redundancy of leachate control. We strongly believe that the existing rules and the proposed rule changes, coupled with continued careful plan review, construction inspections and compliance verification, prevent any reasonable possibility of catastrophic failures as described by the commenter.

18. Comment: At the public hearing on this rule, the Sierra Club entered into the record the DNR report, "Survey Summary - Blocked Leachate Collection Lines - Based on Staff Survey & Line Cleaning Reports." This DNR report demonstrates that clogged leachate lines are currently an un-resolved problem at existing landfills with 1200 ft leachate lines. The collection lines at the Kestrel Hawk landfill are particularly egregious but the report reveals that all the landfills listed suffered from leachate line blockages and most were not repaired. The DNR Greensheet [for hearing authorization] fails to alert the Natural Resources Board and the affected public to these real world problems at existing landfills. But they cannot be ignored. Longer lines are harder to clean out. Longer lines have more joints that can separate, kink or subside. Greater depths increase pressure on the lines. Greater depths makes repairs infeasible and unaffordable. Higher repair costs can mean they do not get done. Blockages are more likely to occur in the future and thereby multiply the costs of repairs. We direct your attention to the more extensive discussed in the consultant's report and the DNR staff power point presentation "Factors Affecting Ability to Clean Out Leachate Lines" (March 2004). Until the public, especially neighboring communities and residents, can be assured that existing problems can and will be repaired, it is not prudent to significantly increase the length of leachate collection lines to 2,000 ft. In fact, DNR's own reports should call in to question even continuing the current case by case approval of 1,200 foot leachate collection lines. Until questions regarding costs to landfill owners versus costs to the state taxpayers are resolved, it is not prudent to significantly increase the length of leachate collection lines to 2,000 ft and it may not be prudent to continue the existing approval of 1,200 ft systems. (SCJMC)

Response: The commenter correctly points out that historically, there have been a number of problems with leachate lines, including line blockages. In those cases, staff have reviewed the available information on the blockage or problem and the ability of the leachate collection system to continue to function, and have determined the appropriate remedial action, if any, on a case-by-case basis. We believe that the design enhancements that are part of the proposed rules will improve leachate system's ability to keep operating over time. The proposed rules also explicitly require investigation and corrective action where blockages are discovered.

The commenter neglects to consider improvements in methods for leachate line cleaning and problem identification, technical design standards and construction material specifications , the redundant features of modern leachate collection systems, and the availability of remedial leachate extraction methods. Leachate collection systems are relatively robust engineering features if designed, constructed and maintained properly. A small problem with an individual line does not inevitably lead to an increased risk of environmental contamination. Where a leachate collection system's integrity is threatened, there is a range of remedial options available, and, although excavating through two to three hundred feet of refuse would present a number of financial and technical challenges, it could be done.

Effect of Proposed Rule on Recycling/ Out-of-State Waste

19. Comment: With respect to item 10. of the Department's Analysis titled "Anticipated Cost Incurred by Private Sector", the cost incurred at individual landfills cannot be specified with the certainty expressed. Many of the costs savings identified may be offset with additional costs, some identified and many not identified in the proposed rule (additional construction and operating costs, costs associated with resistivity testing, additional monitoring, etc.) Also, while the word "Potentially" was used to describe negative impacts on recycling interests, Republic is not aware of any information that supports the position that longer leachate line length impacts recycling efforts or interests. The success of recycling will be defined on its own merits, not by the design or operation of the closest landfill. (Republic)

Response: We agree with the comments on the uncertainty of costs. In addition to the factors mentioned by the commenter, costs incurred by any one landfill depend on location, operation and other site-specific factors. On balance, however, we continue to believe that larger landfills would have overall lower costs due to economies of scale.

With respect to the potential impacts of the proposed rule changes on recycling, we believe that if the cost of waste disposal in landfills is reduced, recycling could become a less attractive option. There are many other factors involved, including legal and regulatory constraints (the statutory bans on landfilling recyclables), subsidies for recycling programs which internalize costs, and markets for recycled commodities.

20. Comment: Extending leachate collection lines will only increase the size of landfills. This may sound like a good alternative to starting more landfills, but it will just encourage more out-of-state garbage. (Campbell)

21. Comment: Extending the 1200-foot rule encourages larger expansions. The economics of scale create larger landfills that are less expensive to construct. Cheaper landfills equate to reduced tipping fees. Lower tipping fees will continue dependence on landfilling and will most likely attract greater quantities of out-of-state waste. Additionally, a vision of Zero Waste is not consistent with large cheap landfills. (WEAL)

22. Comment: Since expansions have not lasted as long as projected in Feasibility Reports, and waste companies are responsible for projecting the expected tonnage, it is very likely larger expansions will also fill more rapidly creating the "need" for new sites. Because Wisconsin does not have tonnage caps, the volume of waste disposed is entirely dependent on a company's ability to secure contracts. The DNR has a responsibility to set the record straight and inform the public that longer leachate lines at existing facilities does not automatically equate to a DNR denial of new landfills in the state. (WEAL, Campbell)

Response: We generally agree with the commenter on this issue. Because the waste industry has evolved to the point where it is regional in nature, waste shipments commonly cross state lines. Companies in the waste disposal business weigh a number of factors in developing landfills, among them development costs, the ability to get a site approved, and the costs of transporting waste to a particular landfill. At the present time, landfill development costs are relatively low in Wisconsin, and because Wisconsin law limits the ability of localities to veto landfill development, there is a reasonable level of assurance that a landfill proposal will be approved if there is need, if the site is suitable, and if the facility is properly designed. Given these realities, coupled with the proximity of Wisconsin to large metropolitan areas in Illinois and Minnesota, increased landfill size could result in efforts by landfill companies to secure contracts that increase the flow of wastes to their facilities in Wisconsin, in turn bolstering the apparent "need" for expanded or new landfill capacity.

<u>Financial Impact of Proposed Rule</u>

23. Comment: According to WDNR Analysis Item 10. Anticipated Cost Incurred by the Private Sector, "The overall costs to counties and private companies that own, operate and develop landfills will be reduced." This is not true. As the proposed rules have been written, there are several additional costs that will be incurred at all sites, regardless of size or whether they request to have extended pipelines. The only entities that will benefit from any cost savings will be the very large MSW sites who can justify widening their base footprint and significantly increase the waste height and volume over the liner, thereby recognizing economic savings as calculated on a cost per acre basis. (BH)

Response: We agree that smaller landfills and landfills with site limitations will find it more difficult to realize the economics of scale than larger landfills. Note, however, that the proposed rules contain additional requirements for landfills with longer (>1200 feet) leachate lines. While larger landfills may see cost savings from the proposed rules, these savings may not be available to smaller operations, and we have modified our greensheet analysis accordingly.

24. Comment: The proposed changes to the NR 500 series may have a substantial impact to small municipal landfills throughout the state; a consideration that I believe was missed in the WA-47-04 and Fiscal Estimate analyses. By allowing landfills to grow larger, the proposed rule permitting 2000-ft leachate lines could have a monumental negative impact on small municipal landfills. Small municipal landfills may not be able to afford to or may have other restrictions that preclude them from this expansive, gargantuan type of landfill built beneath the 2000 feet of leachate lines. Their ability to compete against large, corporate waste disposal companies will diminish, negatively impacting the small municipal landfill, its customers and its affiliated municipalities. (Portage Co.)

Response: See the response to the previous comment. Regarding the ability of small municipal landfills to compete in the marketplace, we have seen a reduction in the number of smaller landfills over the past decade or so, due to industry trends including consolidation and vertical integration. In response, a number of Wisconsin counties have begun banding together in regional landfill approaches to reduce costs to their citizens, to be more competitive in the marketplace and still provide needed environmental protection. These facilities may be able to take better advantage of the economies of scale inherent in the proposed rule.

25. Comment: The Department has determined that, according to Wisconsin Statute s. 227.114 definition of a small business (independently owned business, with less than 25 employees, and income of less than $2.5 million), the proposed rule changes will have no effect on small businesses. The Portage County Landfill is a business that employs less than 25 people, has less then $2.5 million in income and is run, independent of county tax dollars, as an enterprise fund. Its only source of income is from the sale of air space, or tipping fees. The same is true of the County's Material Recovery Facility. (Portage Co.)

Response: While there are aspects of the Portage County Landfill and MRF that resemble a small business, these enterprises do not meet the legal definition of that term. Section 227.114(1)(a), Stats. defines "small business" to be a business entity that is "independently owned and operated" and "has gross annual sales of less than $2,500,000." As Portage County stands behind the obligations and potential debts of its Landfill and MRF and assists their operation through staffing, equipment and facilities, they do not meet this definition of a "business entity", which implies a reasonable degree of independence and an overall business and for-profit purpose.

As the Portage County Landfill and MRF do not meet the above statutory definition of "small business", the Fiscal Note prepared for the proposed rule changes does not need to evaluate effects on them under the relevant terms of s. 227.114, Stats.

26. Comment: Proposed changes that would apply to all landfills regardless of whether their leachate lines exceeded 1200 feet in length will increase costs for smaller landfills that cannot benefit from the economies of scale afforded by 2000 foot leachate collection lines. One example is the proposed change in NR 504.07(6)(a) that would require a ten-fold increase in the permeability of final cover drainage layers. This would add hundreds of thousands of dollars to the cost of closing a landfill and would also increase the required proof of financial responsibility for closure. (Portage Co.)

Response: We believe the merits of the proposed design, construction and operational changes for all landfills are justified by the associated increases in environmental protection and safety. The specific example cited by the commenter is proposed in response to well-documented problems in other states with controlling drainage within the final cover layer of landfills, that we would like to avoid in Wisconsin. The change in drain layer permeability has been left unaltered, but proposed language has been added to explicitly require analysis of the performance of the drain layer.

27. Comment: In more than one instance, the green sheet indicates that there may be negative impacts to recycling. Since the Portage County MRF is an enterprise fund, if recycling is negatively affected, there is a cost to local government. (Portage Co.)

28. Comment: Based on the impact that the proposed rules may have on municipally owned landfills and MRFs, the fiscal estimate is in error where it states that the proposed rule would have no cost to local governments. (Portage Co.)

Response: The Department believes that the potential economies of scale that may be achieved by some landfills under the proposed rule could, in the absence of other factors, make recycling of some materials relatively less economically attractive than landfilling. However, we are not convinced that this would happen everywhere, and we believe factors such as commodity market prices for recyclables would play a more important role in the effect on recycling programs. In any case, it is not clear to us that an entity such as the Portage County MRF would incur additional costs as a result of larger landfills being sited elsewhere in the state.

29. Comment: My comments mirror the four page written comments made by Evelyn Fisher of which I attached as part of my comments. I only want to emphasize the unfairness the proposed rules seem to have on smaller landfills. If the State feels its safe to allow a big landfill to get even bigger with longer leachate lines (which I really question) that's one thing. But why require the smaller sites do all the extra monitoring, etc. that goes with that which is only cost effective for the larger sites? Also is the State prepared to maintain the longer leachate lines in the future if a large landfill goes bankrupt? (Lincoln Co.)

Response: Most of the additional monitoring requirements and other upgrades would only be required for landfills proposing longer leachate lines or leachate recirculation. Landfills that could not take advantage of the opportunity to construct larger landfills would not be subject to this set of requirements. The other proposed design, construction and operational requirements that would apply to all landfills are needed to avoid specific problems that have been identified with the current set of requirements, and to ensure that all landfills in the state provide adequate environmental protection and safety.

As for the issue of the state taking over the responsibility for landfills, all Wisconsin landfills are required to maintain their facilities in perpetuity, and to provide proof of adequate resources to fund unscheduled closure of the landfill, as well as long-term care for 40 years after closure. As with all landfills, if an operator goes bankrupt and can't provide care, the state would access these long-term care funds to support the closure or the maintenance of the landfill. In a worst case, where the landfill's resources are inaccessible or inadequate, Wisconsin's Environmental Fund would be used to carry out repairs or maintenance. Our long-term goal is to reduce both the environmental and the financial risks posed by closed landfills. The stability plan requirement in the proposed rule is a significant step toward this end.

30. Comment: The financial impact of this rule will vary widely at individual landfills and cannot be projected. Landfill operators who choose to implement leachate recirculation, research and other activities allowed under this rule may incur additional expenses for construction materials, training,

monitoring and labor which may or may not be off-set by reductions in long-term care costs and other spending. Costs to landfill operators and their customers would be increased by implementation of the landfill stability plan, resistivity testing and other requirements imposed under this rule. Costs may be reduced at landfills constructed with longer leachate lines as allowed under this rule. (WMI)

Response: We agree with the commenter on the difficulty of estimating development and operational costs for landfills but we continue to believe that, in general, larger landfills will afford an opportunity to achieve lower net costs to landfill operators due to economies of scale.

31. Comment: The potential financial benefits of this rule are unspecified and uncertain, and would be offset by the expense of leachate basin-specific monitoring, collection line videotaping, resistivity testing and many other unnecessary and costly requirements that would be imposed under the rule as currently drafted. A recent proposal to conduct resistivity testing at one site, for instance, estimated a cost of $9,200 per acre. Other provisions, such as the requirement to adopt stabilization plans, are simply too vague to allow an estimate of the cost of complying. Regarding recycling, there is no evidence that leachate line length affects recycling interests. To the contrary, there is ample evidence that the two are unrelated. Recycling did not increase when the state imposed the 1,200-foot-limit on leachate lines in 1996, has not decreased where DNR has granted variances, and is as successful near less costly landfills as near the most expensive. Moreover, the companies and governments operating landfills are not distinct from "recycling interests;" in most Wisconsin communities, they are one and the same. (WMI)

Response: We disagree with the commenter's premise that the upgrades in design, construction and operational standards for landfills are unnecessary or that they would completely offset the cost savings available to operators who can achieve greater economies of scale. We expect that the requirements, such as of resistivity testing, will decrease as it becomes a more common engineering practice in the state, and its utility in preventing liner leaks has already been proved at sites in Wisconsin. We agree that it would be difficult now to estimate the costs associated with stability plans, but we believe the benefits will accrue both to landfill operators and to society over the long term as a smaller share of resources needs to be devoted to the perpetual care of closed landfills due to organic matter in the landfill.

Regarding recycling, we agree that the connection between larger landfills and adverse recycling effects are not direct or localized. However, on a statewide or regional scale, we continue to believe that reducing the cost of landfilling generally makes landfill disposal a more attractive option, relative to recycling, reuse, diversion or other options. This economic advantage may be masked by other trends in the marketplace, such as commodity prices, regulatory requirements, transportation costs, or technological advances, but it still plays a role.

While some companies and municipalities operating landfills are also involved in recycling, we do not regard landfill interests as one and the same as recycling interests. The recycling industry and the landfill industry are in competition for materials. A given company may operate successfully in both spheres, but a change in regulatory structures or economic factors affects recycling interests and landfill interests fundamentally differently.

32. Comment: The proposed rules magnify the cost to state taxpayers by failing to require perpetual care and financial liability of landfill operators. If maintenance of closed landfills ends before stabilization, and the landfill owners' liability is removed, the cumulative consequences when the sites fail could bankrupt the states who bear the ultimate responsibility for orphaned landfills. (SCJMC)

Response: All landfills are required to provide maintenance in perpetuity and proof of funds for 40 years of long-term care. With the regionalization of landfilling and consolidation in the industry, we

believe it is more likely that landfill operators will be able to meet their long-term responsibilities for care of their facilities. The proposed rule would not remove landfill owners' liability. The stabilization planning provision of the proposed rule is intended to reduce the amount of time long-term care is needed, and to reduce the degree and impact of potential environmental effects in the meantime. The commenter is correct that states bear the ultimate responsibility for orphaned landfills, but these should be less likely to occur under the proposed rule. It should be noted that feedback from engineering research confirms that stabilization within a MSW landfill can be accelerated by some of the practices addressed in the proposed rules.

Applicability of Proposed Rule

33. Comment: The proposed Rule Changes to the NR 500 should not be implemented as written. Those changes that would apply to all landfills regardless of whether their leachate lines exceeded 1200 feet in length should be considered separately. (Marathon Co.)

Response: During the Department's consideration of increasing the limit on leachate line lengths, we became aware of a number of needed upgrades to landfill design, construction and operational requirements. Some of these are specifically associated with longer leachate lines; others are more generally applicable. We believe it makes sense to implement all of these upgrades at the same time, as a comprehensive package to improve the protectiveness and safety of Wisconsin landfills.

Financial Assurance / Stability / Leachate Recirculation / Technical Requirements

34. Comment: I am concerned that the rule for the technical standards for landfills is moving ahead, although the financial requirements appear to have hit a roadblock and are not moving forward. I am also hearing from some landfill owners that they are working to oppose the requirements for the proposed diversion of organic material from landfills and/or the stabilization of organic materials in landfills. I believe that the continued use of "dry tomb" landfills is creating a growing potential financial liability for the future environmental management of landfilled material. Given this future liability and the lack of perpetual financial assurance by the owners of landfills, this is a potential cost to future generations, rather than putting the cost of proper management on those who generate the waste. I believe that the financial requirements need to be finalized before the technical standards be allowed to move forward and that the standards should not change until the requirements for stability are incorporated into state regulations. I recommend that the entire proposal be put into abeyance until these two conditions are met. I also believe that these concerns of financial responsibility and stabilization are applicable to landfills of all sizes, and thus further recommend that the state issue a moratorium on the licensing of both new landfills and landfill expansions until these conditions are met. (Reindl)

Response: We philosophically agree with the commenter on the importance of technical design standards, stability, and financial assurance in long-term risk management for landfills. We also believe there is a relationship among these elements. Ideally, we would have proposed a rule that completely encompasses a long-term approach to all these aspects of landfill management. However, it became clear during discussions with stakeholders that the financial requirements and the diversion/stabilization of organic materials were topics that need further discussion, while the technical issues connected with longer leachate lines, leachate recirculation and other design, construction and operational features were relatively well understood. Our approach has been to propose implementing the technical requirements, also implement the concept of organic stability through a plan requirement, and continue discussions on the financial responsibility improvements. We believe this effort is consistent with the Waste Management Program's inclusive and collaborative approach to policymaking, developed over the last

several years in conjunction with our formal environmental management system, while remaining protective of public health and the environment.

The recommendation regarding a moratorium on landfill approvals goes beyond the Department's authority; therefore, we do not offer a response to that portion of the comment.

35. Comment: This rule change does indeed address the technical aspects of landfill construction, but falls short in addressing any impacts to closure and long-term care costs. AROW urges the DNR to continue to work with the TAC to complete the work begun on the financial issues associated with the rule change. If a full accounting of all costs associated with landfill disposal of waste is not included in landfill tip-fees, an unfair economic climate will exist that influences solid waste management decisions. (AROW)

Response: We agree with the commenter on the importance of continuing to address the long-term financial issues including full accounting of costs and the need to allow rational waste management decisions to be based on financial knowledge and requirements. While the financial dialog has not moved ahead quickly as everyone would have liked, the Bureau of Waste Management is committed to continuing those financial discussions.

36. Comment: Issues to Consider Regarding Leachate Lines and Leachate Recirculation: stability of disposal cell side slopes; existing and future problems with clogging of leachate lines; potential liner failure; mega-landfills vs. vision of zero waste; and long-term financial assurance**.** (WEAL)

Response: These issues were considered prior to and during the development of the proposed rule.

37. Comment: A portion of landfill tip-fees paid by users include estimations of the cost of long-term care 30 plus years in the future. Recycling, composting and other management options include the full cost of the management of the waste materials. NR 514.07 (9) "This proposed section of the rule will ask landfill operators to include a plan for significantly reducing the amount of degradable organic material remaining after site closure." AROW firmly believes in composting as a preferred method for handling most organic wastes. Removing degradable organics from the MSW stream prior to landfilling and aerobically composting these materials will lessen the potential environmental impact of landfills. (AROW)

Response: We agree with the commenter that the full cost accounting of waste management options should ideally be reflected in all waste management options used. We also agree that composting should have a prominent place on the list of preferred ways to handle degradable organics, although challenges remain in economically collecting of the organic material and in utilizing the compost product. We note that there may be other options that are also effective in accelerating landfills' attainment of biological stability, or provide as-yet unknown advantages in this respect, and we believe it would be inappropriate to limit waste managers to one option before we know more about the others.

<u>Structure of Solid Waste Fees</u>

38. Comment: The unfairness with some of these rules is really demonstrated with the fees charged for licensing a landfill. With a small site receiving less than 50,000 tons per year paying the same as a large site receiving 1,000,000 tons per year for example is like DOT charging the same per year to register a pickup verses a semi. There's no reason why DNR shouldn't adopt a graduated rate system for licensing and review fees. (Lincoln Co.)

Response: See response below.

39. Comment: Other concerns include the inequity of the fee schedule. To address costs in a fair way, we think the WDNR should adopt a graduated rate system for licensing and review fees. One example would be having the sites pay DNR review fees which are proportional to the site's design capacity. This would make the sites which have the greatest potential to cause environmental impact pay the greatest fees. The current system of solid waste fees is a proportionally larger burden on the smaller "Large" sites. Now landfill sites that receive 12,000 to 24,000 tons per year pay the same fees as giant sites that receive 500,000 to 900,000 tons per year. That is not equitable! (BH)

Response: See response below.

40. Comment: Plan review fees should be revised to reflect the true cost to the department. All fees should be graduated based upon the approved volume of a landfill or the amount of waste disposed of annually. The current fee structure is unfair to smaller landfills. (Marathon Co.) (Portage Co.)

Response: The above commenters are correct that the Waste Management Program's plan review fees do not take landfill size into consideration. In effect, the same is true for our base landfill license fees. However, in the mid 1990s, a tonnage-based landfill license fee surcharge was established. This landfill license fee surcharge, currently set at 14 cents per ton, results in larger landfills paying proportionally higher total fees to the Waste Management Program than smaller landfills. In addition, four other tonnage-based fees totaling up to $3.66 per ton are paid to the State of Wisconsin.

41. Comment: If review fees are applied for stabilization or research plans, to ensure timely review and approval, a 120 day review period is proposed. If the review and approval is not completed in 120 days, the plan is approved as submitted. (Republic)

Response: See response below.

42. Comment: If the proposed rules will streamline department review of stabilization, recirculation and research projects as promised, the demand on department resources should decrease. Therefore, fees should not be included for these submittals. To ensure accountability and responsibility for timely review of project proposals, the rule should require that reviews be completed within a maximum of 120 days. (Republic)

Response: In the last eight years, the Waste Program has reduced its staffing by over 30%. Despite this staffing reduction, we have continued to provide timely reviews of submittals, especially those related to landfill siting and those needed for continued filling. Stabilization or research plans not submitted as part of a plan of operation would be subject to the general 65 business day review period specified in s. NR 500.07, Wis. Adm. Code.

<u>Administrative Burden of Proposed Rule</u>

43. Comment: We urge the department to carefully reconsider several rule provisions that threaten to stifle innovation under costly and unnecessary burdens. Examples include requiring monitoring for every collection basin if recirculating leachate, mandatory removal of sediment regardless of collection system performance, and requiring unproven technologies such as resistivity testing despite no demonstrated problem or need. Other requirements and provisions are not sufficiently defined and would cloud the regulatory waters by providing no clear standard for compliance. For instance, NR 514.07(9) offers no

enlightenment beyond a two-sentence requirement that every landfill in Wisconsin prepare "a plan for significantly reducing the amount of degradable organic material remaining after site closure." (WMI)

Response: Our responses to comments on specific rule provisions that the commenter objects to are provided below. We agree that the requirement for plans for achieving organic waste stability is general as currently written. The Department is engaged in discussions with a group of stakeholders, including representatives from WMI, to develop more detail for this concept. However, it is important to include the concept of organic stability in Wisconsin's landfill rules as expeditiously as possible, to allow landfill operators lead time to incorporate the concept into their planning. We expect to propose more detailed rules on this topic in approximately one year.

44. Comment: Onyx is in agreement with the principles associated with the rule change. We do however feel that some of the new requirements of the regulations establish burdensome thresholds or administrative processes that provide no benefit to the environment. Some of the proposed regulations which were developed conflict with the departments streamlining initiatives and conflict with the technical advisory committees recommendations, and as such are highlighted in our redlined attachment. We request that you consider our recommended changes and revise the proposed rules so as not to include items that are not technically justified or supported by science. (Onyx)

Response: Conceptually we agree with the commenter and will look at the specific Onyx rule suggestions with that in mind. As for individual responses, our responses to comments on specific rule provisions that the commenter objects to are provided below.

B. SPECIFIC CODE CITATIONS - Technical issues associated with collection line cleanout length changes

<u>NR 504.06(5): More stringent requirements for large MSW landfills</u>

45. Comment: There were several Rule changes proposed that should have been directed at only the largest MSW sites that want to extend pipelines to 2000 feet, but I strongly do not believe are technically warranted to change for all sites. The now-proposed additional requirements should only be directed at the facilities who want to increase beyond 1,200 feet, not to everyone. The existing NR 504.06(5) does not need to become more stringent for most sites, but possibly the higher hydraulic conductivity in NR 504.06(5)(tm) could be added to 504.06(6) for the sites with 2,000-foot pipelines. (BH)

Response: This subsection addresses changes which the Technical Workgroup agreed were good current practices for landfill design or construction. Some of these items codify existing practice. We see this subsection as needed as landfill operators increasingly utilize leachate recirculation, additional liquids that might be introduced under authorization to implement authority for EPA RCRA Subtitle D Research Demonstration and Development permits, and other measures for stabilization of landfilled waste. The rule changes facilitate operators of any size landfill in seeking approval for leachate recirculation in existing phases.

<u>NR504.06(5)(j)4: Sideslope riser pipe diameter and passage of pumps</u>

46. Comment: Typically pump is placed on sideslope and does not have to pass the junction of the sump and sidewall. Recommend deleting this requirement. (MWH)

Response: The code does not dictate the location of the pump at the low end of the sideslope riser, and some recent submittals include details that show the pump passing the elbow of the riser and positioned on the flat runout section of the riser. We believe that the proposed wording is sufficient to allow designs where the pump is located either before or after the bend or elbow in the riser pipe.

NR 504.06(5)(j)5: Protection of base of sump

47. Comment: There are other materials that can be just as protective and provide a greater amount of flexibility, Allow the designer some flexibility as some technical experts do not like the rigid plate design. (Onyx)

Response: Department staff have seen several variations in designers' concepts of what constitutes protection of the base of the sump, oftentimes simply a doubled-up layer of geomembrane or geotextile. We believe that something more substantial is needed to protect the sump if, in the worst case, a caisson needs to be drilled into the sump as a remedial measure. For that reason, the entire base of the sump should be protected, not just the area immediately below the riser pipe runout, as has sometimes been done.

NR 506.06(6): Applicability to industrial solid waste landfills

48. Comment summary: The rule revisions allow longer collection pipe cleanout lengths only for municipal solid waste landfills. Suggestions were made to allow longer collection pipe cleanout lengths for industrial solid waste landfills or high volume industrial waste landfills, as long as they were subject to the same requirements. (BH, Lincoln Co., WPC, RMT)

Response: The original request to extend the minimum cleanout pipe length was made by operators of composite-lined municipal solid waste landfills, and there has been no discussion in the Technical Advisory Committee or its workgroups on the consequences of extending leachate collection lines in industrial solid waste landfills. The changes in the code are based on landfill design using composite liners. The code currently allows landfills for nonmunicipal solid wastes to be designed as 5 foot thick clay liners. We see no pressing need for a new generation of very large landfills for nonmunicipal solid waste, where collection line cleanout lengths need to exceed 1,200 feet. In fact, the trend with high volume industrial wastes is to decrease reliance on landfilling and to dispose of industrial solid waste by beneficial reuse. We are concerned that some of the requirements in the proposed code are not appropriate for industrial waste landfills, such as the grain size of leachate collection layer gravels. Leachate recirculation has little or no applicability to high volume industrial waste. Finally, we believe that any proponent of a landfill for nonmunicipal solid wastes which would use long leachate collection lines already has sufficient flexibility in NR 504.10 to deal with the specific requirements of design and the waste characteristics.

NR 504.06(6)(d): Overburden loads and pipe wall thickness

49. Comment: there is no need to indicate 6-inch pipe diameter (pipe diameter may be larger like in sump). Also specified density may not be applicable to all cases (e.g., sites accepting industrial wastes). (RMT)

Response: This paragraph was written to require formal pipe strength analysis and to set some minimum specifications to be used in that analysis, based on expectations of greater waste depths and

increased densities arising from longer collection lines, leachate recirculation, and measures to enhance stabilization of waste. We believe that the code language is specific enough to refer to collection pipes rather than sideslope risers.

NR 504.06(6)(e)1: Collection pipe strength

50. Comment: Collection piping constructed of Schedule 80 or 120 PVC or HDPE or other pipe material with a structural design which is capable of supporting the design overburden ~~and documented by pipe strength calculations.~~ Comment: It is recommended that the last part of the above sentence be eliminated, and the designer given the opportunity to select a pipe based on a pre-defined table of allowable maximum loads. If the designer wishes, or has conditions that differ from those for the table values, the designer should still be given the opportunity to perform pipe strength calculations. An example of a table listing acceptable pipes is included below:

Table 1

PIPE MATERIAL	MAXIMUM LOADING	MAXIMUM DEFLECTION
SDR 21 HDPE	76 psi	13.9%
SDR 17 HDPE	94 psi	11.2%
SDR 13.5 HDPE	118 psi	8.9%
SDR 11 HDPE	146 psi	7.3%
SDR 9 HDPE	178 psi	5.9%
SDR 7.3 HDPE	219 psi	4.8%
Maximum loadings assumed controlled by ring compression for properly bedded pipes. HDPE pipe working compressive strength assumed to be 800 psi. Maximum pipe deflection for HDPE pipe based on limiting ring bending strain to 4.2%. *Table should be verified by pipe manufacturers*		

It is important to allow designers select pipe materials that fall outside of the above guidelines, provided they demonstrate the adequacy of the design utilizing pipe strength calculations. (RMT)

Response: Subdiv. (e)1 is somewhat duplicative of par. (d) but is lacking in the detail needed for rule development. The proposed subdiv. (e)(1) is deleted, and a design engineer will have to comply with the more general requirement of para. (d). As suggested, we will seek input from major plastic pipe manufacturers and other sources of technical information to develop guidance over the next few months. We intend that the guidance will reduce the potential complexity of performing and reviewing pipe strength calculations, while leaving flexibility for selection and justification of alternative pipe design and materials which might be precluded by the proposed code inserts.

NR 504.06(6)(e)5: Sediment and debris traps

51. Comment summary: Two commenters noted that solids accumulate in collection pipes, sometimes in surprising amounts, and can be hard to remove. They suggest that that is would be shortsighted to approve longer collection pipes before this design and maintenance challenge is resolved. Three commenters noted that it would be difficult to extract solids from sediment traps which were deeper than the effective height of vacuum lift devices. They advocate use of sediment sumps instead of sediment traps. No detail was offered as to the distinction between the two designs, although supplemental verbal comments indicate that sumps might be allowed to accumulate solids but would not offer a means of extracting them. Two commenters stated that the proposed requirement does not set

clear standards for designing, evaluating, and maintaining debris removal mechanisms, or criteria for confirming whether or not debris is actually impairing leachate removal. (BH, Lincoln Co., Republic, WMI, RMT)

Response: Subdiv. (e)5 has been changed to delete the requirement for sediment and debris traps. We do not have worked out examples of designs for sediment sumps that show how they can be integrated into existing designs and are concerned with potential complications in collection system designs. The rule will maintain the requirement for video inspection of collection pipes, along with annual and five year cleaning requirements. Experience and information collected from these efforts should clarify the significance and rate of buildup of debris and clogging material within collection pipes. Experience with the debris and clogging material removed from clay-lined landfills that drain to manholes may also be useful. We may revise requirements in the future to require removal of debris and clogging if experience and observation confirm buildup in leachate collection piping.

NR 504.07(6)(a): Final cover drain layer

52. Comment summary: Four commenters stated that using a final cover sand drain with a higher hydraulic conductivity than that currently required by code would be a significant cost increase to small landfills. One commenter objected to the change based on the lack of failures to date. Others objected to defining influx into the drain by use of a vertical gradient of one, which assumes that cover soil is completely saturated. One commenter stated that an efficient drain layer was counter to the concept of allowing water to percolate through the final cover system into the waste mass, thus promoting degradation and stabilization of the waste mass. (BH, Lincoln Co., Onyx, Marathon Co., Portage Co., WMI, RMT)

Response: We anticipate that, in the future, there will be very few new small MSW landfills, so we do see the higher hydraulic conductivity specification as a significant impact on small landfills. However, the current code requirement for drain layer permeability will be maintained, but will be amended by proposed language that require explicit analyses of flow and head in the drain.

We anticipate that a combination of large landfill sizes, tall landfill final elevations, and long 4:1 sideslopes may result in potentially high liquid head buildup in final cover drains. Saturated drains and overlying cover soils can lead to decreased shear resistance of the soil layers over the capping layer, which can lead to slumping or slippage of cover soils. Wisconsin has very limited experience with landfills with constructed final covers with very long sideslopes, and none with long lifetimes. Leading researchers in landfill slope failures have been urging designers to use highly permeable drains and subdivided drain lengths to prevent potential slumps or other movements of cover soils, based on examinations of cover soil slope failures across the US. We believe that it is reasonable and prudent to expect landfill owners to assess final cover drainage by modern analytical tools, design them to maintain the head within the drain thickness, and use saturated cover soils as the basis for calculating infiltration rates. Cover soil slides on large landfills would be expensive to repair, especially if repairs are needed to the drain layer or capping layer.

Note that infiltration through a clay or composite cap is not sufficient to maintain degradation of the landfilled waste. Water demands by decomposable waste are much higher than water available due to infiltration, a fact that is demonstrated numerous times by the condition of waste samples when drilling gas extraction wells into clay-capped landfills. Other approaches besides infiltration through code-specified cover systems are needed for post-closure support of enhanced degradation.

NR 506.07(8): Additional requirements - extended collection lines

53. Comment: The integrity of all leachate collection lines should be maintained regardless if they are 900, 1600, or 2000 feet long. There is no technical basis for setting different standards for different lengths. The long term performance of this design feature is critical and uniform regardless of the length. The environmental risk is just as great if this system fails and thus the standard should be applied uniformly. This standard should be applied to existing facilities as well for the same reasons. From a technical perspective the older sites pose a greater risk and thus should have a greater level of QA than the newer better designed, constructed and operated facilities. (Onyx)

54. Comment: Please clarify that this section does not pertain to existing approved designs using leachate lines greater than 1,200 feet. It would not be possible to retrofit many existing facilities to meet the proposed rule changes. (WMI)

55. Other similar comments were provided concerning results of a Department survey of existing known collection pipe blockages in operating landfills. (G&S, SCJMC)

Response: We agree with the comments on the potential for problems at sites of any size, since the examples cited in the Department's survey are from landfills that comply with the current leachate collection pipe cleanout length limits. Para (8) has been revised and relocated to apply to all landfills, not just those with collection line cleanout lengths greater than 1,200 feet. The applicability of all portions of para (8) to existing landfills will have to be evaluated on a case by case basis.

NR 506.07(8)(a): Annual vs. 5-year pipe cleaning requirements

56. Comment summary: Two commenters stated that the rule implied that annual pipe cleaning was still required, or that allowing less than annual cleaning was, in effect, reducing costs for larger landfills. One commenter suggested that the five year cleaning event should replace the annual pipe cleaning requirement. (BH, Marathon Co., WMI)

Response: The intent was that the 5 year pipe cleaning be in addition to the currently required annual pipe cleaning. The requirement has been modified to a demonstration of pipe cleaning equipment across the entire base grade at the completion of construction only.

NR 506.07(8)(b): Pipe cleaning to toe of opposite slope

57. Comment summary: One commenter suggested specifying that pipe cleaning be done from the down flow side of the pipe as nozzle heads are designed to propel the line forward through the pipe and to flush solids behind them as they are pulled back out. One commenter stated that complete insertion of a cleaning hose throughout the pipe length was excessive and that it was sufficient to assure that hose insertion from each end overlap in the middle of a collection line. One commenter suggested a more general approach that would allow landfill operators to select the method and the contractor best qualified and equipped to address the circumstances of a particular landfill, and that, furthermore, Wisconsin was the only State to mandate pipe cleaning by insertion of hose to the toe of the opposite slope. (Marathon Co., Republic, WMI)

Response: The wording was modified to delete the requirement for removal of debris from pipe cleaning operations. Landfill operators and pipe cleaning vendors will still have flexibility in determining the conduct of pipe cleaning. The requirement to insert cleaning equipment from the access pipe of one

end of a line to the toe of the opposite interior sideslope was kept as a part of documentation of initial liner construction of a cell, as one purpose of this procedure is to confirm that a cleaning device can be penetrate the length of the collection line, even under the influence of overburden weight of the waste mass. This also provides some feedback on whether equipment will be able to clean a line in the future even if a blockage occurs near the toe of one of the interior sideslopes.

NR506.07(8)(c): Video camera inspection after 5 year cleaning

58. Comment summary: Four commenters stated that video camera equipment is limited in its ability to penetrate a collection pipe and may be difficult to meet in all parts of the State or at a reasonable cost. One noted that visuals from a video camera can be of poor quality due to lens fogging or blinding from contact with leachate sediments. One noted that camera technology has improved but that only a select few can provide quality service. One commenter stated that the requirement was unnecessary as a routine measure and that it should be performed only in the case of a documented pipe blockage. The commenter also noted the potential for hangup of the camera within the pipe. (MWH, Marathon Co., Republic, WMI)

Response: The limited amount of video imagery of leachate collection pipes that we have seen in the past has been quite useful to Department staff. We believe that it is necessary to determine the need for future requirements for removal of debris and sediment during pipe cleaning operations. We do not believe that an operator should wait until a blockage has occurred before doing visual inspections for potential buildup of clogging material. There may be impacts due to leachate recirculation, additional liquids, or waste stabilization efforts on leachate quality on pipe clogging potential. Camera inspections can offer at least a qualitative measure of pipe deflection under overburden of landfilled waste mass. We agree that camera technology is evolving, but it has produced some impressive equipment developments in recent years, and we expect that both hardware and economics will improve. We believe that camera inspections of pipe conditions at five year intervals is not excessive. The requirement has been modified to require camera insertion as far as vendor equipment allows, which will allow use of in-house equipment that vendors possess but will also encourage development of better equipment with longer insertion lengths.

NR506.07(8)(d): Correcting blockages in collection pipes

59. Comment summary: Four commenters suggested modifying the proposed language to require repair only as possible or to remove blockages as necessary to maintain flow of leachate. One commenter suggested flushing the collection pipe and collection trench as a means of demonstrating whether flow of leachate was still adequate. Another commenter stated that, with highly permeable gravel around the pipe, most leachate flow is in the gravel under the invert of the pipe rather than in the pipe itself, reducing dependence on the pipe to remove leachate. The commenter further stated that blockage within a pipe should not constitute a failure of the collection system and should not trigger corrective action as long as leachate head on the liner was maintained at less than 12 inches. (MWH, Onyx, Marathon Co., Republic, WMI)

Response: We agree that a minor wording change will provide some flexibility, but we intend that pipe blockages be corrected to the extent possible. Exemption language already exists in the code to address extreme situations. We agree that, under ordinary circumstances, most leachate flow should be in the highly conductive gravel below a pipe invert. That may not be the case with aggressive leachate recirculation or use of additional liquids, particularly if leachate chemistry leads to some clogging of the aggregate below and around the collection pipe or within the pipe. We are not certain if age of a landfill

has an effect of incidence of blockages. We also do not want to depend on leachate head monitoring devices to demonstrate depth of leachate head, since the geometry of landfills limits placement of headwells to portions of cells close to the exterior perimeter berms, where they would provide little or no information about leachate heads in the center of a landfill cell. Consequently, we believe that landfill operators should investigate and correct collection pipe blockages if at all possible.

NR506.07(8)(e): Summary report after 5 year pipe cleaning

60. Comment summary: Four commenter suggested minor wording changes to support previous comments about pipe blockages and use of video camera inspection. (MWH, Onyx, Republic, WMI)

Response: Certain modifications were made to the originally proposed text.

NR 506.07(8)(f): Summary report after removal of dams or barriers

61. Comment Add to end of text: This report could be part of the cell construction documentation report. (Onyx)

Response: We believe that this language is not needed. Landfill operators will likely include this information in a construction documentation report if the timing is right. However, the dams are typically removed just before filling starts in a new cell, which is usually after the documentation report has been reviewed and approved by the Department.

NR 512.09(6): Additional requirements - extended collection lines

62. Comment: Same issue as previously stated., if there is a legitimate environmental concern it should apply to all. (Onyx)

62. Comment: As stated previously, please clarify that this section does not apply to existing approved designs. (WMI)

Response: We believe that the issue of settlement of landfill base grades and effects on collection pipe slopes are particularly relevant to larger landfills with greater overburden weights. Geotechnical evaluation of subgrade soils can be requested at any size site or any existing site where Department staff become concerned about the potential geotechnical behavior of particular soil layers. As proposed, this paragraph would apply only to landfills that go through the siting process when these requirements become effective.

NR 512.09(6)(a): Boring in cell subbase for stability/settlement assessments

63. Comment summary: One commenter stated that the applicant should be allowed to present a technical position on stability/settlement without having prescriptive requirements. The commenter suggested a potential pathway for groundwater contamination by the existence of the boring, requested technical flexibility in the requirement and that it should apply to all landfills. Another commenter suggested wording changes, requested specifications for technical parameters, and allowing the certifying engineer to select number of samples per soil layer. A third commenter suggested that bedrock samples

were not needed, that granular soils are adequately characterized by blow count data, and that further testing be limited to soil layers with fine-grained soils, which are known to have longer-term settlement. (Onyx, WMI, RMT)

Response: We do not believe that properly abandoned boring for geotechnical investigation of landfill subgrade soil layers would be any more of a groundwater threat than would properly abandoned boreholes and wells installed for groundwater definition. We also believe that a proper geotechnical analysis has to be based on samples of soil from the project site. However, we agree that the most likely soils that could settle enough to cause changes in slope of liner and collection trench are fine-grained. The code was revised to allow use of blow count data for coarse-grained soil layers, to eliminate sampling of bedrock, and to sampling and lab testing of samples from fine-grained soil layers. Qualified engineers would still have flexibility to exercise their judgment as to which soil layers should be sampled, based on data from both the dedicated geotechnical boring and from other borings used to characterize the site for soil stratigraphy and groundwater conditions.

The consolidation testing data are intended to be used to assess adjustments to have to be made to the design of the liner and leachate collection system and to contribute to an assessment of site feasibility. We believe that the proposed requirements for NR 516 which require confirmatory geotechnical borings can be eliminated.

NR 514.07(6)(c) and NR 516.07(2)(d): Leak location survey as CQA measure

64. Comment summary: Six commenters responded. One commenter stated leak location surveys would increase costs but would not provide benefits, did not feel that the technology was scientifically based, that is needed more scrutiny, and did not recommend that it be part of NR 516 CQA requirements. Other commenters also stated that the leak location survey would increase costs without benefit or that more investigation into the technology was needed. One commenter stated that is was unclear if the requirement applied to all landfills or only to those that recirculated leachate. Two commenters stated that testing produced uncertain results and that false positives were a potential problem. (BH, Lincoln Co., Onyx, Marathon Co., Republic, WMI)

Response: We disagree with the comments about the reliability and maturity of the technology. Leak location technology has been available for 3 decades as a commercial service, is based on well-established physical principles, and has been used with considerable success in investigation of landfills and lagoons that were known to have leaks. There is nothing inherently different in using leak location technology for construction quality assurance (CQA) purposes compared to using it for forensic evaluation of liners with problems, except that the absence of waste in a newly prepared cell facilitates repairs.

Leak location technology is different from the conventional CQA for landfill liners in that it assess the integrity of the geomembrane after placement of the drain layer, collection piping, and collection sump riser pipes. It is the only means of detecting damage to the geomembrane component of the liner due to placement of the drain layer and to machinery movements, as the geomembrane surface would be obscured by aggregate or by geotextile padding.

There are additional factors that support use of leak location survey as a routine CQA measure for liner construction. Increased use of leachate recirculation and the potential use of additional liquids for landfill stabilization purposes results in increased hydraulic loadings on the leachate collection system. The use of higher permeability aggregate for the leachate collection layer is intended to counteract effects of that higher hydraulic loading, but the act of placing that aggregate increases the potential of causing

geomembrane damage that cannot be detected by currently required CQA measures. We are also concerned about the interaction of rock content in clay and higher overburden stresses on the liner due to increased waste heights and densities that result from larger site size, liquids addition, and stabilized waste.

The issue of false positives is not a significant objection. With larger aggregate, any detected leak location is quite likely to be an actual defect in the geomembrane. The CQA staff observing the testing will have flexibility in deciding if a detect is truly a false positive and does not warrant repair.

We believe that it is appropriate to selectively reduce CQA efforts during construction where leak location technology will be utilized. The current requirement for frequency of destructive sampling has been extended. We will continue to review experience and technical information to determine if other reductions are warranted.

NR 514.07(6)(d): Removal of debris from collection lines

65. Comment summary: Two commenters reiterated previously stated suggestions that sediment from pipe cleaning should be stored in sediment sumps rather than removed from sediment traps. (Republic, WMI)

Response: The requirement for installation of sediment traps or sumps has been deleted. The requirement for video camera inspection will be used to determine if removal of debris and sediment from collection lines should be required in the future.

NR 514.07(8): Additional requirements - extended collection lines

66. Comment: Please clarify that this section applies only to areas that are new or expanded. (WMI)

Response: We believe that the proposed language is sufficiently clear on which facilities the requirements will apply to. NR 514 applies to the plan of operation, so the code requirements will apply to all new plans of operation for sites which accept municipal solid waste and which have leachate collection lines that exceed 1,200 feet in cleanout length.

NR 516.08: Additional requirements - extended collection lines

67. Comment: this section is redundant, again. (Onyx)

Comment: "Newly constructed landfills ~~Landfills~~ shall meet the following additional requirements where they will accept..." (WMI)

Response: We believe that the proposed language is sufficiently clear as to which facilities the requirements will apply to. The code requirements will apply to all new plans of operation proposed under NR 514 for sites which accept municipal solid waste and which have leachate collection lines that exceed 1,200 feet in cleanout length.

NR 516.08(2): Testing requirements

68. Comment: If some changes are made to allow longer pipes, some of the 516.08(2) requirements would only be needed if the facility is designed at the minimum pipe grades and base slopes. If the subbase is dense and adequately sloped, the extra testing is not necessarily warranted. (BH, Lincoln Co.)

Response: The requirement for sampling and testing subsoils at the construction phase was removed, in expectation that sufficient information would be obtained during the feasibility study investigation and that the liner and collection piping design will be adjusted to account for any potential for consolidation of the subgrade.

NR516.08(2)(b): Testing hydraulic conductivity of high-capacity drainage material

69. Comment summary: Three commenters stated that hydraulic conductivity testing of gravel should be deferred to use of grain size analysis and interpretation by use of the Hazen's equation. Two also stated that standard hydraulic conductivity testing is not directly applicable to testing of gravel, due to rapidity of water flow through the gravel. (MWH, Republic, WMI)

Response: The existing code was written when use of gravel for leachate collection layers was uncommon. Now, use of gravel is commonplace, and other requirements in this rule revision will likely result in use of coarse gravel. Landfill operators will need an accurate estimate or measurement of the hydraulic conductivity of such gravel in order to analytically assess the potential head on the liner. This becomes a significant issue due to the increased use of leachate recirculation, the potential use of additional liquids for waste stabilization, and the inability to obtain accurate head measurements on the liner in the middle of large landfills. Hazen's equation is not appropriate for estimating the hydraulic conductivity of gravel.

We acknowledge that testing apparatus for high conductivity gravel is specialized, but such devices are available. The code was revised to require a minimum of 1 test of a representative sample of leachate collection gravel per liner construction phase. Any potential for variation hydraulic conductivity will be assessed by reference to the grain size analyses already required by code.

C. SPECIFIC CODE CITATIONS - Leachate Recirculation

General

70. Comment: Are the provisions for leachate recirculation and liquids addition consistent with Federal Subtitle D regulations? (WEAL)

Response: Yes. Subtitle D explicitly allows recirculation of leachate. Our State regulations were revised in 1996 (NR 506.13) to reflect the federal rules regarding leachate recirculation.

71. Comment: Leachate recirculation should be addressed at the Feasibility Study stage of the siting process so that public review and input can be sought, rather than allowing it to be approved at a later stage as a plan modification. (WEAL)

Response: Although we agree that it is better to address in general all aspects of a landfill at the feasibility stage, leachate recirculation is a design and operational issue that is best addressed in detail at the plan of operation stage, or in a subsequent modification to the plan of operation. Because leachate recirculation is a widespread practice both in this state and nationwide, the public can make the

assumption that a municipal waste landfill is likely to engage in leachate recirculation at some point in the future, and therefore still provide input at the feasibility stage.

72. Comment: DNR should carefully consider the long-range ramifications of leachate recirculation projects and not grant broad approvals. (WEAL)

Response: Research shows that the long-term ramifications are beneficial. The Department has issued case by case approvals for leachate recirculation for at least 5 years and we are confident in granting broader approvals based on the experience we have gained to date. Leachate recirculation is a relatively common practice at larger landfills nationwide and we expect that it will become even more common in the future. We believe that if leachate recirculation is implemented properly it will help to accelerate the breakdown of organic material in the landfill, contributing to a reduced risk from the landfill in the future.

NR 500.03 (124e)

73. Comment: Modify the definition so that leachate recirculation is not limited to the landfill that generated the leachate. (Onyx)(WMI)

Response: Federal Subtitle D rules do not currently allow leachate recirculation to include any liquids beyond the leachate generated at the site, except through a research program approved by EPA. This set of proposed rules includes a section (NR 514.10) for research plans which is necessary to gain EPA authorization to allow DNR to grant research approvals.

74. Comment: Wording changes are proposed to clarify the definition. (WMI)

Response: Wording changes have been made to clarify the definition, but it has not been changed to allow leachate from other landfills to be recirculated (see previous response).

NR 504.095(1)(a)

75. Comment: Under specific circumstances, the department may find it appropriate to allow recirculation at an older or closed landfill that was not constructed with a composite liner. The rule should allow alternative liners approved by the Dept. (WMI)

Response: We believe that situations where leachate recirculation would be appropriate at a landfill without a composite liner would be rare. In the situation where it may be appropriate, an exemption to this rule provision can be requested and granted under the provisions of NR 500.08(4).

76. Comment: Under certain situations, the Department may find it appropriate to recirculate leachate for certain industrial waste sites where the waste has significant moisture holding capacity (e.g., coal fly ash). (RMT)

Response: We believe these situations to also be rare. As stated in the previous response, if leachate recirculation would be appropriate, it can be granted under the provisions of NR 500.08(4).

NR 504.095(1)(b)

77. Comment: Recommend changing "hydraulic permeability" to "hydraulic conductivity" for consistency in wording with other sections. (MWH)

Response: Agreed. The term has been changed.

78. Comment: Why limit the science by imposing restrictions if there is positive environmental impact without an increase in environmental risk? Suggest leaving this more broad to allow the designer greater flexibility. (Onyx)

Response: Application of the engineering science requires some limits to prevent known deleterious effects. In regard to the leachate drainage material, we believe that a minimum permeability is necessary to ensure effective collection of the additional liquids, and that an increase in environmental risk would occur at lower permeabilities. In regard to the limitation of leachate head, federal subtitle D rules limit leachate recirculation to landfills that can maintain less than 12 inches of head on the liner.

79. Comment: There are situations where, on a temporary basis, leachate heads may exceed 12 inches (new cell filling, sideslope riser pump malfunction). As a result, the maximum leachate head on the liner should be maintained an <u>average</u> of less than 12 inches. (Republic) (RMT)

Response: The department recognizes that leachate heads can exceed the 12 inch limit for short, temporary periods due to non-routine circumstances. We would not consider that these circumstances would prevent recirculation of leachate. Please note that the limitation for past exceedances of the 12 inch head limit only applies to landfills with leachate drainage materials with lower permeability drainage material (<1 cm/sec).

<u>NR 504.095(1)(c)</u>

80. Comment: This provision needs to consider and address potential conflicts with state air regulations, which may directly conflict with the proposed requirement to collect gas in areas prior to initiating leachate recirculation. Recommend that active gas extraction commence in those areas no later than within 180 days of initiation of leachate recirculation unless otherwise precluded under the conditions of a WDNR air permit. (WMI)(Republic)(Onyx)(RMT)

Response: Federal air regulations allow for alternative operational standards to be developed {40CFR 60.752(b)(2)(I)(B)}. The leachate recirculation plan should include proposed alternative operational standards and the circumstances under which the alternative operational standards will apply. We will work with our Air Management staff to ensure that when approved, these standards would apply and there would be no conflict with state air regulations. Please note that this provision requires active gas extraction concurrent with the initiation of leachate recirculation, not prior as stated in the comment.

81. Comment: Difficult to meet this requirement if using surficial application of leachate within active area during waste placement. Only extraction at that point would be through leachate collection system. Consider a delay between recirculation and start of active gas extraction for each area to allow installation of gas extraction components. (MWH)

Response: It is important that increased gas production and odor potential due to leachate recirculation be controlled from the start of recirculation. The requirement for active gas extraction is not limited to the permanent gas extraction system, but can include temporary extraction points or extraction through the leachate collection system.

NR 504.095(1)(d)

82. Comment: Surface application and/or other moisture conditioning techniques should be allowed to treat the waste located in areas within 100 feet of the perimeter.(Onyx)

Response: Please see response below.

83. Comment: Add a provision which provides the flexibility to promote stabilization by allowing treatment of the entire waste mass, provided that slope containment systems are implemented.(WMI)(RMT)

Response: Please see response below

84. Comment: Site-specific variations should be allowed, such as reducing the setback distance for smaller landfills. (BH)

Response: We believe that the 100 foot setback provides a reasonable factor of safety from short circuiting the leachate and causing seep and odor problems. However, we also recognize that a lesser setback could be implemented as suggested, if pro-active measures are implemented to prevent sideslope seeps. Therefore, we are modifying the proposed rules to include the phrase "unless otherwise approved by the Department, provided that slope containment systems are implemented".

NR 504.095(1)(e)

85. Comment: Site-specific variations should be allowed, such as reducing the setback distance for smaller landfills. (BH)

Response: We believe that the 20 foot minimum depth is necessary to avoid short circuiting of the leachate.

NR 504.095(1)(f)

86. Comment: Waste mass saturation is not an appropriate criteria because it cannot be reliably measured. Also make editorial changes in wording. (WMI)(Onyx)(RMT)

Response: We agree that waste mass saturation cannot always be reliably measured. However, we do believe it can be one of many potential indicators of problems with leachate recirculation, and as such should be taken into consideration in the design of the system. Therefore we are not dropping this criteria. We will make editorial changes as suggested to clarify the wording.

NR 504.095(2)(a)

87. Comment: Surface application may result in temporary ponding of leachate. The distribution system should be designed so that leachate is not introduced into the waste in a manner that causes persistent ponding. A 2 hour limit is suggested. (WMI)(Republic)

Response: We believe that adding the word "persistent" will make this provision less clear since persistent is not defined. Rather than specify an arbitrary time limit we believe it is better to consider each case on its own merits.

NR 504.095(2)(b)

88. Comment: Volatilization of compounds in leachate should be allowed. Spray irrigation systems should not be prohibited. (WMI)(RMT)

Response: We recognize that some volatilization of leachate will occur during surface application. However, intentional volatilization (e.g. spray irrigation) is not an acceptable practice in Wisconsin due to the contaminants common to leachate and the odor problems associated with leachate.

NR 504.095(3)(b)

89. Comment: Please define "pumping characteristics." Is this a property of the collection system? (WMI)

Response: The term "pumping characteristics" applies to the pumps which are distributing the leachate into the vertical injection system. The pumping characteristics (i.e. size of pumps, duration of pumping event, volumes pumped, time duration of pumping) need to be considered when determining the expected radius of influence of each well.

NR 504.095(3)(c), (d), and (f)

90. Comment: Editorial changes are suggested. (WMI)

Response: We are not incorporating the phrase "to the extent feasible" as suggested for (d) but will change the word "determined" to "designed". We will add the word "also" as suggested to the phrase "may be designed to 'also' extract landfill gas" in (f).

NR 504.095(4)(b)

92. Comment: Leachate will migrate from the pipes regardless of whether there is bedding material. The use of permeable bedding material should be discretionary. (WMI)

Response: We believe that it is critical for the leachate to be distributed as uniformly as possible through the waste mass, and that permeable bedding material will help accomplish this goal. Bedding materials can include a wide variety of material, including tire chips and other beneficially used wastes.

NR 504.095(4)(c)

93. Comment: Distribution pipes are typically HDPE and capable of accommodating some movement. Bedding will not prevent differential settlement and serves very little structural purpose. (WMI)

Response: We agree that thickwalled HDPE pipe is less susceptible to failure stresses than PVC pipe, but we also want to leave flexibility to use thinwalled, corrugated pipe. The bedding material will help distribute the extreme stresses caused by differential settlement and help lengthen the life of the pipe, as well as serve as a permeable distribution media for the leachate.

NR 504.095(4)(d)

94. Comment: Leachate recirculation should not entail active gas extraction under all circumstances. Horizontal distribution can be dedicated to leachate distribution. (WMI)(Republic)(RMT)

Response: We agree. We have added the phrase "unless otherwise approved by the Department" to accommodate special cases.

NR 504.095(4)(e)

95. Comment: Due to the heterogeneity of the waste mass and all the other variables some flexibility needs to be allowed. Editorial changes have been suggested. (WMI)(Onyx)

Response: It is important that pumping pressures and intervals be designed to prevent seeps and other problems due to excessive pressure. Flexibility is more appropriate for the operations section where design assumptions are modified as necessary to reflect operational conditions. We have changed the word "determined" to "designed" but not added the suggested phrase " to the extent practicable.

NR 506.135(1)(a)

96. Comment: Surface application and/or other moisture conditioning techniques should be allowed to treat the waste located in areas within 100 feet of the perimeter.(Onyx)

97. Comment: Add a provision which provides the flexibility to promote stabilization by allowing treatment of the entire waste mass, provided that slope containment systems are implemented.(WMI)

Response: : We believe that the 100 foot setback provides a reasonable factor of safety from short circuiting the leachate and causing seep and odor problems. However, we also recognize that a lesser setback could be implemented as suggested, if pro-active measures are implemented to prevent sideslope seeps. Therefore, we are modifying the proposed rules to include the phrase "unless otherwise approved by the Department, provided that slope containment systems are implemented".

NR 506.135(1)(c)

98. Comment: This provision needs to consider and address potential conflicts with state air regulations, which may directly conflict with the proposed requirement to collect gas in areas prior to initiating leachate recirculation. Recommend that active gas extraction commence in those areas no later than within 180 days of initiation of leachate recirculation unless otherwise precluded under the conditions of a WDNR air permit. (WMI)(Republic)(Onyx)

99. Comment: Difficult to meet this requirement if using surficial application of leachate within active area during waste placement. Only extraction at that point would be through leachate collection

system. Consider a delay between recirculation and start of active gas extraction for each area to allow installation of gas extraction components. (MWH)

Response: Federal air regulations allow for alternative operational standards to be developed {40CFR 60.752(b)(2)(I)(B)}. The leachate recirculation plan should include proposed alternative operational standards and the circumstances under which the alternative operational standards will apply. We will work with our Air Management staff to ensure that when approved, these standards would apply and there would be no conflict with state air regulations. Please note that this provision requires active gas extraction concurrent with the initiation of leachate recirculation, not prior as stated in the comment.

NR 506.135(1)(d) and (e)

100. Comment: Inconsistencies exist between section (d) and (e) in describing failures and warning symptoms. (Republic)

Response: We agree and have made changes to make the two sections more internally consistent, and have moved the list of criteria to consider to the leachate recirculation plan section (NR 514.07(7)(f).

101. Comment: Suspension of leachate recirculation due to triggering warning symptoms or failure thresholds should be limited to the area where the problems are occurring. (Onyx)

Response: We agree that triggering warning symptoms should be limited to the area where problems occur. In (d) we have added the phrase "…in the area where the problem occurred…" to the existing wording "Leachate recirculation may not resume…". However, exceeding failure thresholds means there are serious problems and all recirculation should cease until those problems are resolved.

102. Comment: As noted previously, elevated head levels are permissible for short periods during the active life of the landfill. The rule does not specify a means of measuring waste mass saturation or defining "saturated conditions" and saturation should not be relied upon as an indicator. Regarding notification, we are suggesting DNR reserve the flexibility to develop project-specific notification criteria. (WMI)

Response: The department recognizes that leachate heads can exceed the 12 inch limit for short, temporary periods due to non-routine circumstances. We would not consider that these circumstances would prevent recirculation of leachate.

We agree that waste mass saturation cannot always be reliably measured. However, we do believe it can be one of many potential indicators of problems with leachate recirculation, and as such should be taken into consideration in the operation of the system. Therefore we are not dropping this criteria.

We agree that notification procedures can be customized, and have added the phrase "except as otherwise approved by the Department".

NR 506.135(1)(g)

103. Comment: By drainage basin, do you mean each portion of a site that drains to a side-slope riser pump? (Marathon Co.)

Response: Yes. We have added a definition of "Leachate drainage basin".

104. Comment: Recommend looking at site as a whole versus each drainage basin. Difficult and costly to complete monitoring to obtain required data for liquid balance of each drainage basin. (MWH)(Republic)(BH)

Response: We believe that to effectively operate and monitor a leachate recirculation system you need to focus on the localized impacts. Looking at the site as a whole covers too large of an area to adequately monitor the effectiveness of your efforts. Leachate drainage basins generally range from 4 to 8 per landfill and each basin can include up to 2 million cubic yards of waste. Therefore we believe that looking at leachate recirculation on a leachate drainage basin basis is a reasonable compromise. However, we also recognize the concern that this can significantly increase costs. Therefore we have significantly reduced a number of the proposed code requirements, particularly in the monitoring section, to limit the cost while still maintaining a reasonable level of assessment to control problems and understand the impacts of the system. In general, hydraulic considerations will be monitored on a leachate drainage basis while chemical considerations are monitored on a whole site basis.

NR 506.135(2)(a)

105. Comment: Surface application may result in temporary ponding of leachate. The distribution system should be designed so that leachate is not introduced into the waste in a manner that causes persistent ponding. A 2 hour limit is suggested. (WMI)(Republic)

Response: We believe that adding the word "persistent" will make this provision less clear since persistent is not defined. Rather than specify an arbitrary time limit we believe it is better to consider each case on its own merits.

NR 506.135(2)(d)

106. Comment: Limiting leachate recirculation in this manner only to the active area is too restrictive. Closed landfills or active landfills with final or intermediate cover should not be excluded if all other design and operating criteria can be met. (WMI)(Republic)

Response: This section applies to surface application of leachate. We believe that surface application is only appropriate in active fill areas that have not received intermediate or final cover. Leachate recirculation may be appropriate for horizontal and vertical distribution systems where the leachate is distributed below the cover. For that reason, we have not included the same restriction in those sections of rule.

NR 506.135(2)(e) and (f)

107. Comment summary: Editorial changes are suggested. (WMI)

Response: We agree with the editorial suggestions and have incorporated them.

NR 506.135(5)(a) to (c)

108. Comment: Recommend looking at site as whole versus each leachate drainage basin. For leachate recirculation only, studies have shown that there is insufficient liquid volume to reach field capacity. As a result, not even critical to collect and report this much data. These data requirements are typical for a research project versus full-time application. (MWH)(WMI)(Republic)(BH)

Response: We believe that to effectively operate and monitor a leachate recirculation system you need to focus on the localized impacts. Looking at the site as a whole covers too large of an area to adequately monitor the effectiveness of your efforts. Leachate drainage basins generally range from 4 to 8 per landfill and each basin can include up to 2 million cubic yards of waste. Therefore we believe that looking at leachate recirculation on a leachate drainage basin basis is a reasonable compromise. However, we also recognize the concern that this can increase costs due to potentially multiple sampling points. Therefore we have significantly reduced a number of the proposed code requirements, particularly in the monitoring section, to limit the cost while still maintaining a reasonable level of assessment to control problems and understand the impacts of the system. In general, hydraulic considerations will be monitored on a leachate drainage basis while chemical considerations are monitored on a whole site basis.

NR 506.135(5)(d)

109. Comment: This is a large data gathering exercise with limited benefit. Why is this being required and too what end? Data is nice but resources could be better utilized in other areas. This should not be a requirement. (Onyx)

Response: We believe that monitoring of new landfill practices is of great benefit, both to document the validity of the practice and to track effects, both beneficial and deleterious. The monitoring specified in NR 507.215 consists of indicator parameters to monitor the effectiveness of the system and provide early warning of potential problems that may not be visible at the surface. Graphing is a simple means of portraying this data so that it can be easily assessed. Computer graphing programs are simple and commonly used in business to track trends and make better business decisions.

NR 506.135(5)(e)

110. Comment: Perched leachate heads and saturated conditions cannot be reliably measured or defined, and have been appropriately addressed by the proposed operating requirements, such as the requirement to avoid seeps. (WMI)

Response: We agree and have eliminated this requirement.

NR 506.135(6)

111. Comment: While these are generally appropriate performance parameters, they should be incorporated as specific and measurable standards considered warning symptoms or failure thresholds under NR506.135(1)(d) and (e). (WMI)

Response: This section is redundant and has been eliminated as suggested. We will rely on NR 506.135(1)(d)and (e) and the leachate recirculation plan to define appropriate warning and failure threshholds.

NR 507.215

112. Comment: Recommend evaluation by site versus each leachate drainage basin. Typically, leachate characteristics will be collected as a composite sample, not each drainage basin. Landfill gas system extraction very difficult to match to drainage basin area. (MWH)(Republic)(WMI)(BH)

Response: See previous comment addressing whole site evaluation vs. evaluation by leachate drainage basin. In general, hydraulic considerations will be monitored on a leachate drainage basis while chemical considerations are monitored on a whole site basis. Therefore, we have modified this provision to require leachate sampling and testing on a whole site basis. The gas system data can be estimated based on flow rates at individual wells and wells assigned to leachate drainage basins based on their areal location.

NR 507.215(1)

113. Comment: Change the frequency of precipitation records from daily to monthly. (WMI)

Response: Daily precipitation records are recommended by technical experts and researchers in this area. We will allow use of monthly records and will review whether they provide an adequate assessment over the long term. We have changed the requirement from daily to monthly as suggested.

NR 507.215(3)

114. Comment: Data gathering with little to no value. Suggest document large trends and limit the scope. (Onyx)

Response: We believe that monitoring data is essential to evaluating the performance of the leachate recirculation system, both from the standpoint of maximizing decomposition and avoiding serious problems. The monitoring that is required is for indicator parameters that are generally inexpensive and can give a reasonable assessment of the impacts of the leachate recirculation As mentioned in previous comments related to whole site evaluation vs. evaluation by leachate drainage basin, we have significantly reduced or eliminated the monitoring frequency for the more expensive parameters of Total Fatty Acids and VOC scan, and Table 4 parameters, and have eliminated the requirement to sample and test leachate for each leachate drainage basin..

The indicator parameters listed in NR 507.215(3)(a) to (e) will remain quarterly, while alkalinity and hardness will be added as (f) and (g). Total Volatile Fatty Acids has been eliminated. The requirement to do the semi-annual parameter list in s. NR507.21(1), Table 4 for each leachate drainage basin has been eliminated (please note that the current requirement to do the semi annual leachate testing for the site as a whole has not been changed).The proposed requirement to do a VOC scan quarterly for each leachate drainage basin has been reduced to semi-annual.

115. Comment: Limit sampling to the leachate sump, rather than allowing other points to be used. (Onyx)

Response: Although we agree that the leachate sump is the most appropriate location for taking samples, we believe that changing this provision will make it less flexible, and there is not a strong reason for making this change.

116. Comment: Significant health, safety and logistic problems would arise in sampling individual sideslope risers (SSR) in order to provide basin-specific measurements. SSRs are permit-required confined spaces and may be entered only by specialized contractors who have undertaken extensive training, and then only with venting, atmospheric monitoring, an escape tripod and harness and a standby and response companion. This adds significantly to the cost of obtaining samples if entry to SSRs is required. (WMI)

Response: We believe that sampling taps or other appropriate means can be used to obtain samples without needing to resort to confined space entry. However, we have eliminated the requirement to obtain leachate samples on a leachate drainage basis.

NR 507.215(3)(f)

117. Comment: Volatile fatty acids (VFA) are not required for routine monitoring. Data from WM Bioreactor projects show that VFA's increase at the same time BOD and COD increase and pH decreases as a cell enters phase III, the acid phase of decomposition. Since the other parameters so reliably mirror the trends for VFA, monitoring for VFA only adds expense without commensurate benefit. There are only a few labs that perform the tests and the tests are expensive. Please remove this requirement. (WMI)(Onyx)(BH)

Response: We have eliminated the requirement to test for Volatile Fatty Acids. However, VFAs are a significant performance parameter in the decomposition process, and we will evaluate the necessity for adding them to the required monitoring in the future.

NR 507.215(3)(g)

118. Comment: Annual VOC scans of leachate that are already conducted are sufficient. (WMI)

Response: The current rules require VOC scans as part of the semi-annual leachate monitoring. We have changed the proposed requirement to do VOC scans from quarterly to the currently required semi-annual.

NR 507.215(4)(a)

119. Comment: Monitoring should be on a full site basis rather than by leachate drainage basin. (WMI)(BH)

Response: Please see previous response related to whole site evaluation vs. evaluation by leachate drainage basin. Gas flow rates can be determined for individual wells and each well can be assigned to a leachate drainage basin.

120. Comment: All existing WDNR solid waste and air permits require monthly gas well monitoring. Weekly monitoring would add at least $3,000/month to a site's operating costs and is not necessary for

operating the system. Suggest that gas monitoring remain consistent with current permits. (WMI)(Republic)

Response: The proposed requirement for weekly frequency has been changed to monthly as requested.

NR 507.215(4)(b)

121. Comment: This is not necessary, given that potentially watered out gas wells can typically be readily identified from the monitoring data. Liquid levels should be checked only in wells that have no flow when full vacuum is applied, and then only when no other explanation is apparent. Some wells with no or low flow are decommissioned wells or are not producing gas due to gas quality issues, and have just a minimal vacuum applied. In any case, as written the requirement is not limited to areas in which leachate recirculation is occurring, and the term "assessment" is not defined. (WMI)

Response: Please see the response below.

122. Comment: Liquid level monitoring in each gas well seems unnecessary. If liquid levels increase, routine monthly gas monitoring will document vacuum and gas volume changes. If operating conditions change, a liquid level measurement would then seem appropriate. (Republic)

Response: Although we agree that operational changes such as reduced gas flow are often good indicators of a problem in a well, there can be problems with watering out the lower levels of an extraction well that won't necessarily be reflected in changes in flow rates. Therefore, we believe that a routine assessment of gas wells is appropriate. We do agree that a quarterly assessment may be more frequent than necessary, especially since operational problems are handled as they occur. Therefore, we have changed the proposed quarterly frequency to annual.

NR 514.07(7)(c)

123. Comment: Calculations need to be simplified for field operations. Recommend using a set volume per acre per day that is allowed. How are you going to monitor change in moisture content of waste and water vapor in landfill gas? (MWH)

Response: The intent of the leachate recirculation plan is to provide a logical design basis for the system. Loading rates should be calculated based on the best available information at the time the system is designed. We believe that the factors given in the proposed rules for consideration in the design of the system are all legitimate parameters. In some cases the design calculations will need to depend on estimates based on experience and information from other sources rather than direct field measurements. Moisture content and water vapor are both factors that are likely best handled this way. Field conditions may dictate changes to the original design calculations, but we are not suggesting that moisture content of the waste and water vapor loss be field measured on a routine basis. However, if problems are occurring in the implementation of the leachate distribution, then it may be appropriate to check the original design assumptions for validity. If a conservative volume per acre per day assumption will accommodate all variables, then this may be a legitimate design approach.

124. Comment: The need to calculate loading rates for each leachate drainage basin/cell seems excessive. The cost and difficulty of monitoring individual drainage basins would make leachate recirculation unaffordable at most landfills, contrary to the department's goal of accelerating stabilization.

Extensive research shows that a large volume of liquid is required to reach an optimum moisture level of between 35-45%. Leachate recirculation alone does not produce enough liquid to reach optimum moisture levels. Approximately 60 gallons of leachate per cubic yard of waste is required to reach optimum moisture levels. Other than for research there is no need for the additional monitoring, recordkeeping and reporting for recirculation only landfills. The analyses should be conducted over the entire landfill. (Republic)(WMI)(BH)

Response: Please see previous responses related to whole site evaluation vs. evaluation by leachate drainage basin.

125. Comment: Collecting data by basin would seem to entail installing a sump for each basin and would make data collection, as opposed to environmental value, a design influence. (WMI)

Response: We have clarified the definition of leachate drainage basin to be based on the area drained by a leachate sump. Therefore, the site design dictates the leachate drainage basin rather than the leachate drainage basins dictating the design.

NR 514.07(7)(f)

126. Comment: If the department wishes to encourage recirculation, it must provide a degree of confidence that operations will not be suspended indefinitely pending lengthy review of proposed modifications. A 30 day response period for the Dept is suggested, with leachate recirculation allowed to resume if no response is received. (WMI)

Response: The way the proposed rules are designed is to have a warning symptom threshhold that causes temporary termination of leachate recirculation until the problem can be determined and fixed. This does not require a Department review to begin recirculation again. The time the system is down is solely dependent on the landfill operator determining the nature of the problem that caused the threshhold experience and making an appropriate adjustment. In simple cases, this could mean restarting the system the same day. The failure threshhold indicates a much more serious problem that will require a greater degree of scrutiny, both from the landfill operator and the Department. We expect to work with the operator as the problem is investigated and a solution is developed so that the review turnaround time should be limited.

NR 514.07(7)(g)

127. Comment: The need to track the volume of leachate extracted and the volume of precipitation in each leachate drainage basin/cell seems excessive. (Republic)(MWH)(WMI)

Response: Please see previous responses to the whole site evaluation vs. evaluation by leachate drainage basin.

128. Comment: This plan should also state the circumstances under which leachate will not be recirculated, but removed for treatment. (Marathon Co)

Response: We agree. Another subsection, NR 514.07(7)(j), has been added to address this suggestion.

D. SPECIFIC CODE CITATIONS - Landfill Organics Stabilization Plans

NR 500.03(120g)

129. Comment summary: Editorial changes to the definition are suggested as well as removal of the clause relating to the potential for organic decomposition to resume when moisture and temperature conditions improve. (Onyx)(WMI)

130. Comment: It is suggested that the definition of "Landfill organic stability" include a reference to health-based standards when defining landfill leachate organic components. Also, "measurable" settlement seems rather restrictive. Maybe some percentage of fill height on an annual basis could be used (less than 1% of the fill height measured on an annual basis). (Republic)(WMI)

131. Comment: Control or regulation of organics should be directed at regulated compounds, and levels should be compared to applicable human health or ecological risk standards. (RMT)

Response: The proposed code provisions regarding organic materials in landfills are intended to address not only health-based standards for organic substances found in leachate, but also physical stability and the potential for gas production caused by undegraded organic matter such as paper and cardboard, food waste, wood, and yard waste. The presence of degradable organic matter in the waste mass can also cause exceedances of health-based standards for inorganic substances in leachate such as metals. The Department's purpose in proposing that new and expanded landfills be required to submit plans for reducing the amount of degradable organic material remaining after closure is to minimize the potential for long-term impacts caused by the degradable organic material, and is not limited to controlling the concentration of organic compounds in leachate. This effort may also show reductions in the long-term costs and risks of conventional landfills.

It can reasonably be asserted that if, over the long term, the landfill retains unreacted organic material that will resume decomposition in the presence of water, it cannot be said to be organically stable. Similarly, it could be argued that, if the landfill is still settling at a measurable rate from year to year, it is not organically stable.

The standards for determining when landfill gas production has "effectively" ceased, leachate has no "significant" organic component, and settlement is not "measurable" are the subject of discussion in the Department's internal-external workgroup on landfill stability.

NR 500.03(120r)

132. Comment: the definition of landfill stability is not consistent with the broader concept of stability described in NR 514.10 and other rule sections. (WMI)

Response: The commenter is correct; the terms were inconsistent. We have changed the term used in the proposed NR 514.10 section.

133. Comment: Definitions for "Landfill organic stability" and "Landfill stability" are provided, but these terms do not appear to be used in the proposed rules. It is recommended that provisions be included in the rules to allow a landfill owner to apply to the Department for a reduction or elimination of post-closure care and Proof of Owner financial responsibility for those sites that meet the definition of "landfill stability". If a site has reached "landfill stability" but has not reached "Landfill organic stability", post-closure care and Proof of Owner financial responsibility should be limited to only those activities and costs necessary to maintain current moisture and temperature conditions. (RMT)

Response: We consider it important to define the desired endpoint of landfilling within the NR 500 series, and to distinguish between organic stability, and stability that additionally encompasses inorganic or geochemical processes that might require monitoring and maintenance. We have altered the wording in proposed NR 514.07(9) to clarify that the required plans are intended to accelerate the achievement of landfill organic stability over the long term.

We agree that it may be appropriate to reduce owner proof of financial responsibility when landfill organic stability is reached, and to eliminate it when landfill stability is reached. The direct link between owner proof of financial responsibility and stability was deleted from this rule proposal because of the technical complexity of the financial issues, but we will continue to work with stakeholders on the concept.

NR 514.07(9)

134. Comment: What is this in reference to? Are you suggesting that all sites incorporate re-circulation of leachate in the Plan of Operation? For more rapid decomposition or are you suggesting that slower decomposing materials such as demolition debris be kept out of landfills. If you are, I would be opposed as it would put an additional burden on smaller sites and further promote larger and fewer mega sites. Further clarification or explanation is need for us who were not involved with this code addition. (Marathon Co)

Response: The proposed requirement for new and expanded landfills to submit a plan for reducing degradable organic material after site closure is not intended to force all sites to employ leachate recirculation, but to require operators to employ measures that will shorten the time to landfill organic stability as a way of minimizing the long-term costs and risks of landfilling. We anticipate that there will be a variety of methods that can be used to achieve this end, including in-landfill methods such as leachate recirculation, bioreactor operation, or waste processing, and methods such as waste diversion that would reduce the amount of organic materials present in the landfill. We do not expect this requirement to significantly favor larger landfills because it would apply equally to all new and expanded sites.

135. Comment: A plan can be written, but it is the general public who has to abide by the plan. Landfill operators cannot enforce this provision. This appears to be a bottom up regulatory requirement with no input or commitment from the public. The TAC advisory groups never reached agreement on this issue. If the department wants to create a process by which to remove organics from the landfill then the state legislature needs to create this law or regulation. This is equivalent to the recycling laws that have been put into place in the state. It is not the mission of landfill operators to develop and impose these conditions upon the citizens of the state. Landfill operators are providing a much needed waste disposal management outlet for the wastes generated , and are not responsible for establishing rules on how the public must manage solid wastes. This provision should be removed and all stakeholders need to buy into the program prior to this public policy initiative being dumped on landfill operators. (Onyx)

Response: The Department is not attempting to create a process by which to remove organics from landfills, but to manage organics both inside and outside the landfill in a way that promotes organic stability and minimizes the long-term costs and public health and environmental risks caused by landfilling these materials in a dry-tomb manner. This is clearly a landfill-related problem and needs cooperation by the landfill operators. The proposed provision requires landfill operators to furnish a plan for reducing the amount of degradable organic material remaining after site closure, which may or may not include restrictions on the amount of organic matter accepted for disposal.

The Department has worked with a variety of stakeholders in the past several years during the development of this rule and of the goals and principles which underlie the rule. We are pleased that the commenter has been an active participant in these efforts. The goal of reducing the impact of landfills is one that has garnered widespread support among all our stakeholders as well as the public.

136. Comment: This proposed section of the rule will ask landfill operators to include a plan for significantly reducing the amount of degradable organic material remaining after site closure. AROW firmly believes in composting as a preferred method for handling most organic wastes. Removing degradable organics from the MSW stream prior to landfilling and aerobically composting these materials will lessen the potential environmental impact of landfills. (AROW)

Response: We agree that composting organics may be one possible solution to reducing the impacts of organics in landfills. The rule is intentionally broad to allow many different solutions to be considered.

137. Comment: This provision would apparently require landfills to either accelerate degradation or divert incoming organics and is unacceptable. Existing sites that cannot retrofit to accelerate degradation to an unspecified standard would presumably be forced to attempt to divert incoming organic wastes. (WMI)(Republic)

Response: The Department continues to work with stakeholders, including the commenter, to develop guidance for the plans and to address the issue of existing sites. As proposed, the rule applies to new (plan of operation approved beginning January 1, 2004) and expanded sites only. We believe there are a number of methods that could be effective in reducing the long-term impact of organic materials in landfills, and that the responsibility rests with landfill operators to address the problem.

138. Comment: Landfill operators will readily adopt degradation management practices as DNR communicates the associated environmental benefits, such as reduced gas and leachate production, and the resulting financial benefits of reduced long-term care costs and financial assurance requirements. Landfills, communities and waste generators will pursue those benefits in a manner that best reflects each landfill's design and construction, local waste composition and economics. (WMI)(Republic)

Response: We agree that the plans to be proposed will reflect the specific circumstances of each facility and its associated communities and waste streams, within an overall market context. We believe the environmental benefits of accelerated organic stability are well-understood. The Department will maintain discussions with stakeholders that began during the development of these proposed rules concerning the linkage between achieving stability and reducing owners' proof of financial responsibility.

Regarding economic drivers, we note that landfill operators and waste haulers will benefit from organic waste processing outside the landfill, should these be needed, as well as accelerated decomposition of organic materials within the landfill. Waste diversion will require the same basic collection, transport and management processes that are needed by waste disposal.

139. Comment: As drafted, the rule provision is vague and unworkable. It offers no definition of "significant," "degradable" or "organic," sets no specific time frame for organics reduction, provides no examples of plan activities and gives no criteria for measuring successful implementation. (WMI)(Republic)

Response: We agree that the rule provision is very broad. We believe this will allow a wider range of solutions to be developed. At the same time, we are working closely with stakeholders to better

define the aspects of the planning process identified by the commenter, and welcome participation in that process by interested parties.

140. Comment: New section NR 514.07(9) requires plans for reducing organics after closure. This seems unnecessary to write. If the owners, operators, and consultants understood what the Department is trying to accomplish, we could work toward that, but the requirement is vague and adds more effort and expense for site operations. Perhaps ongoing recommendations and new technical information from WDNR to site owners and all would be more appropriate, if there are improvements to be made. (BH)

Response: We agree that the proposed rule does not clearly spell out the objective of this provision. A sentence has been added to s. NR 514.07(9) to state that the goal of the organics reduction plan is to reduce the amount of time it takes for the landfill to achieve organic stability, as defined in proposed s. NR 500.03(120g). We will continue to work with a stakeholder group to develop recommendations and technical guidance that would be made available to site owners to address questions regarding the plan contents, standards and measurements, and applicability.

E. SPECIFIC CODE CITATIONS - Implementing requirements for RCRA Sub. D RD&D permit

NR 500.03(222m): Definition of "Stabilization of landfilled waste"

141. Comment summary: One commenter suggested wording changes.

Response: Some of the wording changes were incorporated into the text of the definition.

NR514.10: Proposed RD&D permit authorization language - choice of alternative

142. Comment summary: Four commenters expressed preference for the alternative labeled "Research Plan" over the alternative labeled "Landfilled Waste Stabilization Plan". Two commenters called for a technical committee to review methods, monitoring, etc., for achieving stability before putting it into code language. One commenter who expressed preference for an alternative also claimed that the rule would add bureaucracy with little or no benefit, that it put hurdles in the way rather than promoting science of stabilization, that the Department should promote and embrace the activity, and that the Department should simplify the rules and allow a large amount of flexibility. (BH, Lincoln Co., Onyx, Marathon Co., Republic, and WMI)

Response: We will use the second version, originally labeled "Research Plan" but retitled as "Research, Development and Demonstration Approval" (RD&D Approval) and modified with minor wording changes. The proposed requirements are consistent with the RCRA Subtitle D Federal Register rule requirements for Research, Development and Demonstration Permit authority and have been reviewed by EPA Region 5 for consistency with their authorization instructions. After we have received authorization for promulgation, we intend to submit the language to EPA Region 5 for their formal review process for authorization.

There is some value to conducting technical meetings on the subject of landfill stabilization, such as the semiannual Waste Management Program Technical Advisory Committee meetings, or convening a standing committee of experts and interested parties. However, the basic research on waste decomposition within landfills is well established, and alternative technologies for waste stabilization both inside and outside the landfill have been actively investigated in laboratory and pilot plant work. EPA is convinced, and we agree, that the technologies applicable within a landfill have to move beyond

the pilot plant stage and into operating landfills in order to develop methods and operating practices. Data and field experience are needed to determine how operating landfills can apply waste stabilization practices in a controlled manner that achieves defined goals and controls impacts to the public or the environment.

The comments on bureaucracy and restriction on innovation are completely unwarranted. Authorization to implement RD&D approvals must be granted by EPA Region 5, and the requirements were written using EPA guidance to the States on applications for authorization. The time limits, reporting requirements, monitoring requirements, etc., are consistent with the RCRA Subtitle D rule requirements and make sense in terms of generating information about new technology. EPA will require this information for their own evaluation of landfill stabilization methods. The Department's willingness to implement the RCRA Subtitle D RD&D permit authority, which it was not compelled to do, is evidence of its efforts to promote the science and engineering of waste stabilization within landfills in a sound and defensible manner.

Comments by WMI on 1st version - NR 514.10(1)

143. Comment summary: Several suggested wording changes by one commenter on the first version, as well as a request to clarify that leachate recirculation alone does not subject a landfill to the proposed requirements. (WMI)

Response: The first version will not be utilized. It is clear from the new definitions and the language addressing leachate recirculation that the RD&D Approval does not apply to requests for leachate recirculation approvals.

NR 514.10(1)(b)3 (both versions) - Use of closed landfills

144. Comment: This proposed requirement seems too restrictive. The language eliminates closed landfills as a potential for stabilization. The rule should be written in a manner that any proposed changes would require Department approval. (Republic)

145. Comment: This provision would needlessly restrict the department's own flexibility and runs counter to the overall goal of this effort, which is to promote innovation. For instance, the provision does not allow for compliance with the Federal Air Regulation MACT, bioreactor rule. Also, many systems will require modifications to the leachate and gas systems outside the limits of waste, such as increasing the size of the gas system components or installing temporary sections, adding leachate forcemains or pump stations, modifying SSR pumps, etc. Finally, as drafted the restriction will essentially forbid retrofitting of closed landfills, regardless of the potential environmental benefits. (WMI)

Response: We believe that the language is sufficiently flexible as proposed. Subdiv. (b)2 clearly states that a proposal for an RD&D Approval can be submitted for a closed landfill. Any changes to the items mentioned in subdiv. (b)3 should be proposed and justified as a plan modification under currently established procedures. An RD&D Approval is not intended to be a tool to change fundamental landfill features that were approved as part of the siting process. Significant design changes to items such as liner, final cover, the leachate collection system, and so on may entail reopening the feasibility study review and public participation process. Changes of this magnitude are outside the scope of an RD&D Approval. Changes to gas extraction hardware and leachate handling and redistribution hardware both inside and outside the landfill can be accomodated by the usual plan modification procedures. We do not see a conflict with the Clean Air Act MACT requirements.

Comments by WMI on 1st version - NR514.10(1) & (2):

146. Comment summary: Wording changes were suggested on specific requirements for length of testing periods, renewals, Department review, assessment of the process selected, and temperature/fire plans. (WMI)

Response: The first version will not be utilized. However, the requested changes are contrary to specific provisions of the RCRA Subtitle D Federal Register rule requirements for Research, Development and Demonstration Permit authority and instructions provided by EPA Region 5 for consistency with their authorization instructions.

Comments by WMI on the 2nd version- NR514.10(1), (2) & (3):

147. Comment summary: Wording changes were suggested on specific requirements for length of testing periods, renewals, Department review, assessment of the process selected, and temperature/fire plans. (WMI)

Response: The requested changes are contrary to specific provisions of the RCRA Subtitle D Federal Register rule requirements for Research, Development and Demonstration Permit authority and instructions provided by EPA Region 5 for consistency with their authorization instructions. Suggested wording changes to the project termination requirements of para (3) were rationalized with language in the leachate recirculation requirements.

NR 520.04(4)(a): Fee schedule for stabilization/research plans

148. Comment summary: Four commenters made general comments about the NR 520 fee structures and suggested tailoring fees to landfill size but made no specific comments on fees for the NR 514.10 research plan. One commenter suggested that the Department set a 120 day review period, with automatic approval if an NR 514.10 research plan was not approved within that time period. One commenter that the rules would streamline Department review and reduce demand on Department resources, and suggested that the proposed fee table be dropped.

Response: This rule did not propose any changes to the NR 520 fee structure generally. It was intended to propose fees solely to recover costs that the Department staff would expend on review of RD&D approvals, annual reports, and renewals. The Department is obligated to set fees that are sufficient to cover the work effort expended. There were comments on proposed fee amounts, and the NR 520 inserts were revised to eliminate references to version 1 of the RD&D Approval requirements.

Our observation is that is takes about the same amount of effort to review and approve a plan modification for a small landfill as for a larger one on similar topics. Despite any alleged differences in the impact of fees on operators of small landfills versus large ones, fee amounts have to be set to recover the Department costs.

While it is theoretically possible that waste stabilization processes will reduce long-term environmental impacts of landfills, the review of proposals under the Landfill Stability and RD&D Approval authority will be an addition to Department workload, the costs of which have to be recovered.

We will not implement the suggestions for a 120 day review period and automatic approval. The Landfill Stability and RD&D Approval review process will follow the established plan modification review and approval process, with the exception of the separate fee table for Landfill Stability and RD&D Approval reviews.

F. APPLICABILITY

Initial applicability

149. Comment: Rule applicability should be more specifically defined. Any Feasibility Report submitted after the effective date of the rule would be subject to the new rules. (Republic)

150. Comment: "SECTION__INITIAL APPLICABILITY. This rule applies to the regulation of landfills for which feasibility studies are first received after its effective date. No provision of this rule shall be applicable to any landfill unless and until the rule takes effect. (WMI)

Response: The standard language is adequate. It is evident from the rule-making process that rules do not become effective until a date assigned by Department of Administration.

G. LEGISLATIVE COUNCIL RULES CLEARINGHOUSE COMMENTS

151. Comment: A number of minor formatting comments were made regarding form, style, grammar and consistency with rule-making formats. The report accompanying the comments noted that the rule changes were consistent with statutory authority, did not conflict with or duplicate existing rules, adequately referenced State statutes, and did not conflict with related Federal regulations.

Response: The comments were evaluated and incorporated into the rule changes.

H. LIST OF COMMENTERS AND ABBREVIATIONS

AROW	Joseph Van Rossum, Associated Recyclers of Wisconsin
BH	Evelyn Fisher, Becher-Hoppe
Campbell	Thomas Campbell, resident near Onyx Emerald Park and WMI Metro Landfills
G&S	Glenn Stoddard, Garvey & Stoddard, for Sierra Club John Muir Chapter
Lincoln Co.	Robert Reichelt, Lincoln Co. Solid Waste Manager
MWH	Dale Lane, MWH
Marathon Co.	Jim Pelliteri, Marathon Co. Director of Waste Management
Onyx	Todd Watermolen, Onyx Waste Services
Portage Co.	Meleesa Johnson, Administrator, Portage Co. Solid Waste Dept.
RMT	Bernie Krantz, RMT
Republic	Dan Otzelberger, Republic Waste Services
Reindl	John Reindl, citizen of Dane Co.
SCJMC	Caryl Terrell, Sierra Club John Muir Chapter
WMI	Gerard Hamblin, Waste Management, Inc.
WPC	Edward Wilusz, Wisconsin Paper Council
WEAL	Charlene LeMoine, Waukesha County Environmental Action League
Witt	Barbara Witt and other residents near WMI Orchard Ridge Landfill